# BETTER FRUIT

VOLUME XIV AUGUST, 1919 NUMBER 2



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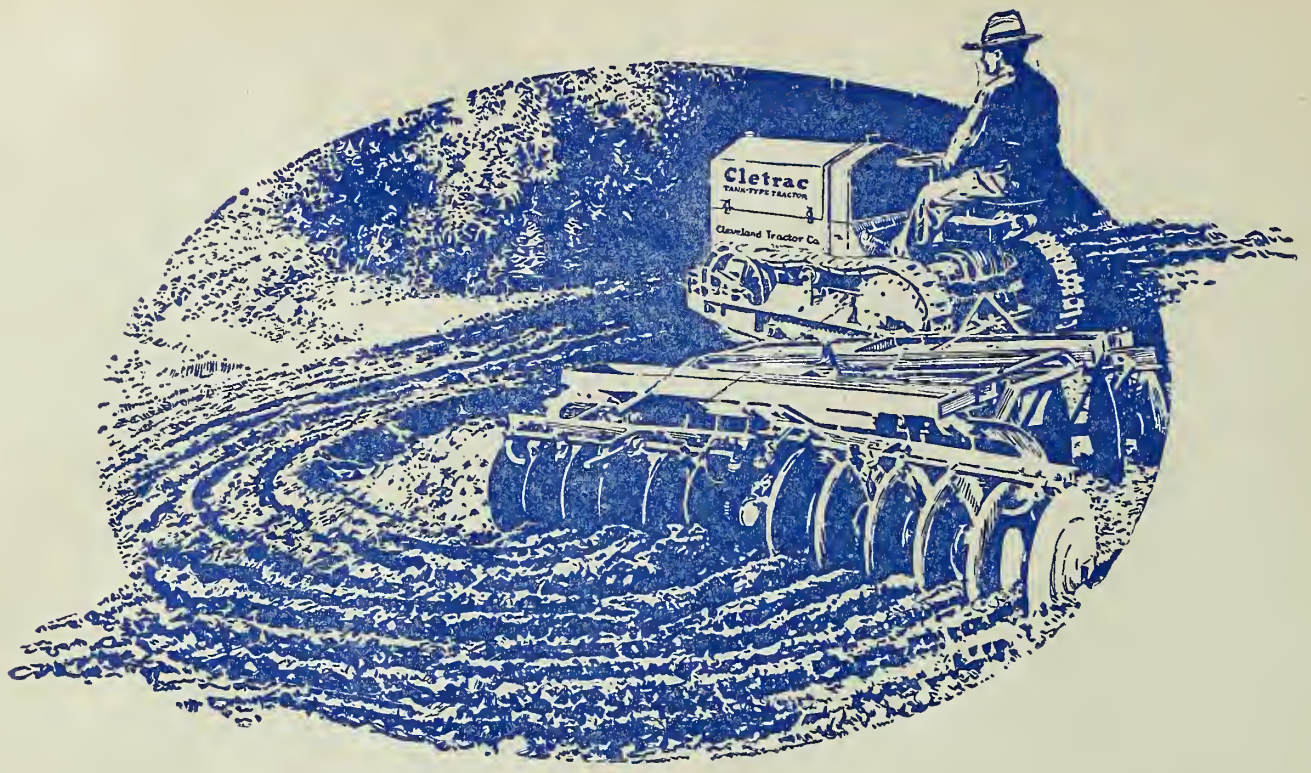


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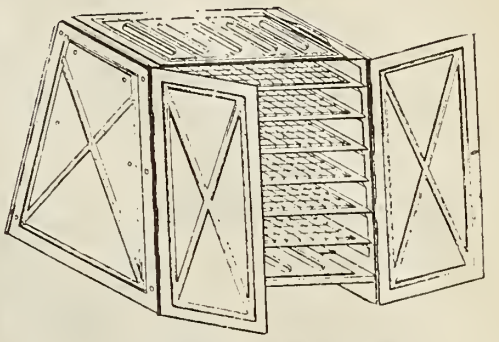

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# BETTER FRUIT

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An Illustrated Magazine Devoted to the Interests of Modern, Progressive Fruit Growing and Marketing.

PUBLISHED MONTHLY BY

Better Fruit Publishing Company

703 Oregonian Building

PORTLAND, OREGON

All Communications should be addressed and Remittances made payable to
BETTER FRUIT PUBLISHING COMPANY

SUBSCRIPTION PRICE:
In the United States, $1.00 per year in advance. Canada $1.25; Foreign, including postage, $1.50.

ADVERTISING RATES ON APPLICATION

Entered as second-class matter April 22, 1918, at the Postoffice at Portland, Oregon, under the Act of Congress of March 3, 1879.

VOLUME XIV — PORTLAND, OREGON, AUGUST 1, 1919 — NUMBER 2

# Harvesting and Preparing Prunes for Evaporation

By C. I. Lewis, F. R. Brown and A. F. Barss, of the Oregon Agricultural College Experiment Station, Division of Horticulture.

DURING the summer of 1911 the Division of Horticulture conducted a prune survey of the state. This survey covered nine counties and involved a study of seven hundred prune orchards. It revealed the fact that there was a great variation in the methods and types of buildings used in the evaporation of prunes.

Since 1911 very little progress has been made in standardizing prunes. The only standard used in the state at the present time for prunes is that of weight, which is based upon the number of prunes to the pound. The California prune growers, wide awake to the needs of the hour, are making efforts to improve the products which they offer the world's markets.

We of the Northwest should do much more than we have done in the past along these lines. What do we mean by standardizing the prune? Simply adopting a degree of excellence which it must attain in order to be marketable. This will mean that the methods employed will in all cases be essentially alike.

Prune growers should study very carefully the cost of producing and evaporating prunes and should conduct their business as economically as is advisable for the production of a high-grade product. Frequently, for over a period of five years, fruit will produce unusually high profits. At such times growers become extravagant, careless in their methods, and are not ready to meet periods of depression or lower prices.

### Harvesting.

In order to have a high-grade evaporated product, it is essential that the fresh product also be of a high grade. It is impossible to take inferior prunes and so evaporate them as to make a first-class product. Much of the quality of the product, therefore, will depend upon the time of harvesting and the methods employed. Too many growers have formed the habit of allowing many pickers to shake the trees; or of sending some unusually strong man, no matter how careless he may be, through the orchard to do the shaking. This practice results in the harvesting of a large amount of unripe fruit.

### Shaking.

There seems to be no common practice followed among all growers in harvesting. Some refrain entirely from shaking until the last picking with the idea of harvesting only the ripe fruit. While there is much merit in this system, it has the drawback of allowing a considerable amount of fruit to become overripe. The tendency seems to be to pick the smaller plantings more frequently than the larger ones. This is due to the impossibility at times of getting over large areas frequently.

The most common practice followed is that of three pickings, shaking the trees for the last two. It must be borne in mind, however, that the finest prunes are secured where it is possible to pick the fruit frequently. In this way one is more likely to secure only ripe fruit. Our survey showed us that the average time of maturity for Italian prunes over a period of years in the Willamette Valley was from September 10 to October 5. In recent years, however, there has been a tendency on the part of a large number of growers to start the harvesting unusually early, generally from the first to the sixth of September, or about ten days in advance of the normal season. This tendency has been brought about by the feeling that the early harvesting might mean less damage from rains later in the season. This early harvesting, however, has necesitated a great deal of shaking. While we do not recommend doing away with shaking entirely, we do advocate delaying the season to the point where a very gentle shake before each picking will supply plenty of fruit. If growers organize their work so as to pick frequently, and there is during the period a moderate amount of wind, practically no shaking will be needed until late in the season.

Illustration showing 44-year-old prune orchard in the Willamette Valley, Oregon, which is still bearing a good crop. High-headed type of tree.

### Picking Too Early.

The season of 1912 should have taught many growers an important lesson. The harvesting that year was started early and at the end of the season after most of the growers had resorted to very vigorous shaking or clubbing, there were still many prunes scattered throughout the trees. A majority of the pickers had finished their work by September 25, which is 10 days in advance of a normal season. A number of orchards were visited on October 2 and the trees examined for fruit. Not a single prune was found still hanging to the trees, although there were many on the ground, indicating that they could not be shaken off at the last picking. Clearly the crop of 1912 was harvested too early and the loss to the growers of Oregon amounted to thousands of dollars.

As fruit matures many chemical changes take place as regards tannin, acids, starches, and sugar. The sugar accumulates very rapidly during the last few days of maturity. Sugar is very desirable in the Italian prune. It means maturity of fruit and heavier fruit, a greater percentage of dried fruit secured from fresh fruit, a shortening of the evaporation period, and the production of a much more desirable product.

Low headed type of prune orchard in the Willamette Valley, Oregon, the greatest prune producing section in the state.

While we did not conduct chemical analyses on such a scale that we can regard our results as at all conclusive, nevertheless those we did conduct indicated that the increase in sugar content was very rapid during the last few days of ripening. From the time the prunes are shaken off until they drop naturally, if not shaken, the increase is 1.6% of their total weight. This increase in weight is practically all sugar and would mean that about 11% of the sugar content has accumulated in that short time. Some studies to determine the differences in specific gravity in prunes in these investigations indicated very rapid increase in weight during the last few days before the prunes dropped. The prunes which dropped naturally had a specific gravity of .0283 higher than those which were shaken off. During the season of 1913 we used a brine solution of 1.0905 density. With this solution one could very easily separate the prunes which were shaken from the trees from those which dropped naturally.

**Losses from Premature Picking.**

Premature harvesting, then, seems to be the greatest cause of loss in the evaporation of prunes. Unfortunately this premature harvesting and great loss has been encouraged by the fact that some packers offer a premium for early delivery. Other growers, fearing rainy weather, practice this early harvesting. Weather records, however, show that rain is as likely to occur early in the month as it is later. Often, if harvesting is delayed, the early rains will cease and good weather will prevail during the remainder of the season. This was true during the seasons of 1911 and 1914. During the season of 1914 the majority of growers were well under way in their harvesting by September 6. In our experimental plots, however, we did not start our picking until September 11 and then obtained only 4.22% of the crop in the picking. Results showed that had we waited five or ten days longer we should have gained more, as that portion of the orchard on which picking was begun September 11 was not completely harvested until September 20.

During the year 1913 we were able to secure some observations in a twenty-acre Italian prune orchard where the owner was harvesting his crop rather early. By harvesting the fruit from a few trees after they dropped naturally, as compared with fruit he was shaking vigorously from the trees, we were able to get a good index of his loss in weight. Using the weight of the dried fruit as a basis, we found that he lost 6% of the total weight of his crop by harvesting too early. In addition to this, the immature prunes dried away more than the ripe ones. This resulted in an additional loss of 6% of his crop, making a total loss of 12%, or a monetary loss of $15.00 a ton due to too early harvesting.

Extensive shaking experiments which we carried on during this same season proved that the prunes which dropped naturally in the fruit harvesting, dried 3 2-3% heavier than those shaken off. The gain in weight of the finished product for the season was 6.05%, giving us a total of 9.25%, or $13.87 a ton.

In obtaining these results we assumed that the cost of harvesting was the same in both cases. It must be remembered, however, that it costs from $1.00 to $2.00 a ton to shake green fruit from the trees. This would mean that from $3.00 to $6.00 for each ton of dried fruit must be added to the cost of harvesting, where shaking is employed. By watching the fruit carefully one can determine the proper time of harvesting.

The ideal prune for evaporating is one which is mature, (that is, fully ripe), which drops naturally, is plump and has a golden yellow flesh. If the prune is shriveled at the stem, has a fibrous dark-colored flesh, or shows a tendency to become mushy, it will mean that the prune has poor drying qualities. The ideal prune will make a sweet, fine-flavored product, and will give as high as 25 pounds of dried fruit to 60 pounds of fresh. Prunes of the second type will give only about 19 pounds of dried fruit to every 60 pounds of fresh, and are dark colored, sour, and tough. Undoubtedly the question of the production of prunes, so as to have them mature early and have desirable characteristics, is one which needs much study and perhaps extensive experimental observations.

**Sorting the Prunes.**

A few of the growers sort out all the decayed prunes at the time the fruit is trayed, but a greater number of the growers depend upon the pickers to gather up only good, sound prunes. We have observed both systems, tried out on an extensive scale, from the point of view of economy. For a number of years we have been


Prunes as fillers in a walnut orchard in the Willamette Valley, Oregon.

convinced that there is a distinct advantage in having the pickers gather everything, the rotten, undesirable fruit being sorted out before it is trayed. With such a system there is very little poor fruit to bother the pickers after the first picking, while if this is not done, the decayed fruit is constantly accumulating, thus making the picking more difficult and disagreeable.

With either system, some sorting will need to be done in the evaporator, and it is well to have some one man in the evaporator responsible for all the sorting, in order that more uniform and satisfactory results may be obtained. This can perhaps be more economically done by emptying the prunes on endless belts, which carry them past the sorter to the dipping machine.

### Brown-Rot Infection.

There is one very good argument against mixing decayed fruit with sound fruit and that is the danger of infection from brown rot. Most of the rotten prunes are attacked by a fungous disease known as brown rot (Sclerotina fructigena). This disease will spread very rapidly from decayed fruit to sound fruit whenever conditions are suitable and often the loss from such sources is very great after the prunes have been delivered to the evaporator and have been allowed to stand around in a warm, moist atmosphere for a considerable length of time. It would be well if there was some system whereby these rotten prunes could be removed from the orchard, and thus prevent them serving as a menace to future crops.

### Picking Up Prunes.

Prunes are picked from the ground and placed in lug boxes which will hold about 60 pounds. The price paid the pickers ranges from 5 to 10 cents a box, depending on the season, crop, etc. From 30 to 40 boxes is considered a fair amount for ten hours work under normal conditions. There are times when many pickers far exceed this average, due to very favorable conditions. It is desirable after the fruit has been placed in the lug boxes to have it removed to the evaporator as soon as possible.

### Yield of Fruit.

The question is often asked as to how many pounds of dried prunes one should expect to the acre. This is an extremely hard question to answer. The condition of the fruit (that is, the degree of its maturity, weather conditions, methods of drying, age and vitality of the orchard, etc.), all exert an influence. At the time we made our survey of 700 orchards we found this kind of information very difficult to secure. The range of yields was wide. One might naturally expect this, owing to the fact that the orchards differed widely; many of them were very old, while others were just coming into bearing. By checking up with packers, as well as with growers, we were able to strike a pretty fair average. The maximum yield reported was 8,000 pounds of dried fruit to the acre. There were a large number of reports exceeding 4,000 pounds an acre. The minimum yield reported was 500 pounds. The average yield of the bearing orchads was about 2,800 pounds of dried fruit to the acre.

### Preparing Fruit for Evaporation.

It is very desirable to evaporate the fruit as soon as possible after harvesting. Unfortunately, fruit is sometimes carried to the evaporator and forced to remain in the boxes for several days before it can be placed on the trays. This always means a serious loss. The brown rot, if present in such boxes, will tend to spread rapidly. There is considerable humidity in the atmosphere around the prune evaporators and the temperature will often range from 90 to 115 degrees. This condition is especially favorable for the spread of fungus, and the loss from this source at times is very high. Again, these conditions encourage the fermentation of sugars in the fruit; our observations revealed a considerable amount of such fermentation. Fermentation always means a loss of sugar and a final loss of weight in the dried fruit, as well as deterioration in quality. The sooner the prunes can be placed in the trays, the less danger there is of loss.

### Grading.

From observations we have been able to make and from experiments we have conducted, we are inclined to believe that it would pay to grade the prunes before they are placed on the trays for evaporation. The greater the variation in size and ripeness of prunes the greater will be the percentage of dobies. The percentage of dobies is also increased by premature harvesting. Under normal conditions the percentage of dobies, due to unevenness in size, is about 3%, but may run as high as 8%. In addition to this, the dipping in lye also seems to encourage uneven drying. It would seem wise, therefore, to practice grading, dividing the prunes into at least three sizes. While such grading can be done by hand, and is being done by hand by many growers, we wish to call attention to the fact that it is possible to purchase machines on the market that can be adjusted to peaches, prunes, apricots, and even cherries. These machines, which can be purchased at prices ranging from $50 to $100, have a capacity of from 25 to 50 tons.

Where prunes are ungraded, the general tendency is to overdry the small and overripe prunes in order to avoid sorting. By spreading the fruits of the same size on a tray, they tend to evaporate in about the same length of time. This would materially reduce the amount of checking and would hasten drying, as it would relieve many of the trays sooner. It would permit, also, at the same time the elimination of worthless fruit, such as decayed fruit, which often takes up too much tray space. By actual observations 6% of the tray space is occupied by fruits which are either partly or entirely rotten. This is where poor sorting and no hand grading is practiced.

### Dipping.

There seems to be a great difference of opinion among the growers concerning the question of dipping. We find that some prunes are dipped in hot lye water, some in boiiing water, some in cold water, and some are dried without even dipping. Yet all these men are able to market their crop at standard prices.

Where lye is used, the average strength is one pound of lye to from thirty to fifty gallons of water. The cost of dipping in lye will vary tremendously according to whether the work is done by hand or by machinery. During our survey we found that, on the whole, machine dipping could be done at from 70 to 85 cents a ton, the hand dipping costing materially more. With a modern power machine, four men can sort the bad prunes, dip, and tray from 500 to 600 boxes in ten hours. The cost of this entire operation would vary to a certain extent, but would average about one cent a tray. In the smaller evaporators, where a small tonnage is handled, the regular drying crew would be able to do the traying during spare time. In such cases the depreciation for each tray would be greater than if the machine were running to its full capacity. Even then, however, the cost of traying would probably be less than with any other method. In our exprimental work, one man did the dipping by hand, two men spread the fruit on the trays, and two did some sorting and stacking the trayed fruit on trucks. The figures in Table 1 are of interest concerning the difference in cost of the two methods.

**Table I. Cost of Dipping and Traying**

| *Method* | *Cost per tray* | *Cost per pound* |
|---|---|---|
| Machine dipped | $.011 | $.000314 |
| Hand dipped and spread in water | .023 | .000770 |
| Additional cost due to hand dipping | .012 | .000456 |
| Additional cost of traying hand-dipped prunes per ton of dried | | $2.73 |

**Cost of Drying Per Ton of Dried Fruit**

| | | |
|---|---|---|
| Machine dipped | $21.80 | |
| Hand dipped and spread in water | 26.06 | |
| Increase in cost of drying due to hand dipping | | $4.26 |
| Increase in cost of traying due to hand dipping | | 2.73 |
| Total increase in cost | | $6.99 |
| Received from sale of rotten prunes | | 2.70 |
| *Net* loss per ton due to hand dipping | | $4.29 |

With hand dipping there seems to be a tendency for more decayed fruit to get on the trays than is true with machine dipping. By the hand method an entire box is handled at a time,

while with the machine and endless belt method the prunes are separately exposed to view both in the feeding trough and as they are carried up into the dipping tank. There is also a tendency not to fill the trays to their entire capacity, the average being only 86 per cent. This would mean that about 20 percent of the trays are either empty or occupied with worthless fruit.

The chief advantage to be gained from the use of lye is the shortening of the time required for evaporation. General practice, as well as our experiments, would bear out this idea. This difference at times is considerable, as shown in Table II.

As is readily seen it required 5.3 hours more to dry the unlyed fruit than it did the lyed. The one mistake made, however, by the strong advocates of lye, is that the shortness of drying time is the main factor considered.

**Table II. Effect of Lye in the Dipping Process**

| *Dipped in lye* | *Weight fresh lbs* | *Weight dry lbs.* | *No.lbs.dried fruit per bu. lbs.* | *Drying time hrs.* |
|---|---|---|---|---|
| Prunes grown on upland | 427 | 151 | 21.27 | 36. |
| Prunes grown on upland, green | 438 | 140 | 19.17 | 38. |
| Prunes grown on lowland | 490 | 169 | 20.36 | 37. |
| Prunes from lowland, partly dried on ground | 444 | 150 | 20.27 | 43. |
| Total Average | 1799 | 608 | 20.27 | 38.5 |
| Dipped in boiling water | | | | |
| Prunes grown on upland | 491 | 176 | 21.46 | 42. |
| Prunes grown on upland, green | 439 | 143 | 19.60 | 45. |
| Prunes grown on lowland | 495 | 151 | 19.27 | 45.33 |
| Prunes grown on lowland partly dried on ground | 266 | 99 | 22.33 | 43. |
| Total Average | 1691 | 569 | 20.66 | 43.8 |

**Lye-Checking.**

Dipping the prunes in lye generally means a considerable loss in weight. From experiments we have been able to conduct we have found this loss to be about 2%. Another point which calls for careful study is that not all prunes in any single lot will be checked by the same strength of solution. Ripe prunes will check more easily than green prunes. It naturally follows, therefore, that under the present methods of harvesting, some prunes will be checked more than others, and we shall find that either the ripe prunes will be checked too much, or else the green ones will not be checked at all. This, of course, is another argument in favor of grading. It is interesting to note that those prunes which would normally dry more quickly without the checking are the ones always checked. On the other hand, if there were many prunes left unchecked, it would be those that would dry more slowly without checking. Should the lye solution be made strong enough to check the green fruit, the riper fruit would be so badly checked that the same relative difference in drying would obtain. On the other hand, lye-checked prunes tend to dry more unevenly than those dipped for cleansing purposes only.

**Sanitary Rinsing.**

Another disadvantage connected with dipping is the question of sanitation. It is very doubtful if, under any method of dipping, there is sufficient accumulation of alkali to be in any way injurious to health. From some chemical tests which were made, however, we found that often the rinsing water was as strong in lye as the dipping solution. To overcome this it would be well to have the prunes pass through a second rinsing vat. The ideal way, however, and the one which every prune evaporator should attempt to adopt, would be to install a water system so that rinsing vats would have a flowing stream of water. Where this cannot be done both the dipping and rinsing vats should be frequently emptied and thoroughly cleaned. We should all aim to maintain the best sanitation possible. Clean, sweet, wholesome fruit is the only kind which will build up a permanent reputation

**Boiling Water.**

Some growers have tried the boiling water and claim they cannot secure results. We know it is possible, however, to secure splendid results with boiling water, as demonstrated in our own experiments and also by our observations with a number of growers who are turning out a good, first-class product. Investigations have shown that occasionally where men have claimed to use boiling water, they have simply used hot, or even merely warm water. This would not tend to check the fruit as would the boiling water.

To those growers who prefer to use lye, we can say that no serious objection can be raised to the practice, if cleanliness is observed and an abundance of good rinsing water is always supplied.

# Peach Picking and Packing for Fancy Trade

WHEN picking peaches they should be firm, well matured with a good color, but not soft in the least. Peaches should be picked as soon as they will leave the tree without breaking the stem from the tree or tear the meat of the peach when the stem is pulled out. They should come off good and clean. Care should be exercised in selecting picking utensils as the peach is one of the most perishable of fruits. Pails and baskets should be lined with burlap or some other soft material.

**The Colorado Pack.**

The peach boxes used in Colorado are three sizes, in depth four inches, four and four and one-half inches and five inches; eleven and one-half inches in width and eighteen inches in length, inside measurement. There are three grades of peaches as to size,

Some fine Ashland, Oregon, peaches.

extra or 80, fancy or 90, choice or 108, and only one grade as to quality. All peaches should be perfect.

The choice grade is the smallest peach wrapped, and is graded in three sizes. By packing a 3x3 pack, the No. 1 size makes six rows across the box, with nine peaches long, making fifty-four peaches to the layer, or one hundred and eight to the box. Size 2, with six rows across the box, three rows nine long and three rows eight long will make fifty-one to the layer, or one hundred and two to the box. Size 3, with six rows across the box, eight long will make forty-eight to the layer or ninety-six to the box.

The fancy grade is packed the same as the choice, except the rows contain less peaches. This grade is in two sizes. Size 1, with six rows, three rows eight long, and three rows seven long, makes forty-five to the layer, or ninety to the box. Size 2, with six rows seven long, makes forty-two to the layer, or eighty-four to the box.

The extra grade runs from forty to seventy-eight peaches to the box and are packed the same as the choice and fancy, except the very large ones, and these are packed a 3x2 pack, with five rows across the box instead of six. There are nine packs of this grade: One, six rows, three seven long and three rows six long, thirty-nine to the layer, or seventy-eight; two, six rows, three rows six long and three rows six long, thirty-six to the layer, or seventy-two; three, six rows, three rows six long and three rows five long, thirty-three to the layer, or sixty-six; four, six rows, three rows five long and three rows five long, thirty to the layer, or sixty; five, five rows, three rows six long and three rows five long, thirty to the layer, or sixty; six, five rows, two rows six long and three rows five long, twenty-

Continued on page 27.

In some sections of the Northwest Angora goats have been found profitable in orchard districts where there is pasture or where cover crops are grown. The above illustrationshows a small band of goats in one of these districts.

# Increasing Profits by Diversifying and Raising Stock

By R. E. Miller, Director of Agriculture, Idaho Technical Institute

LABOR is to be one of the largest, if not the largest, limiting factor in future successful orcharding. Fruit growers are confronted with the economic utilization of labor as well as the other problems which guarantee profitable production. Practices which conserve the labor outlay should, therefore, merit our closest consideration.

Before the war the questions of orchard culture were largely "settled" but the war, with its food crisis, has upset some of our staid notions and opened up again this "settled" problem. The ideal western orchard before the war was one blanketed with a dust mulch followed usually in the fall by a green cover crop. The purpose of the dust mulch being to conserve moisture and aerate the soil.

Clean cultivation has been called "cruel cultivation" by Professor Paddock, because by this practice the organic matter is readily "burned" out of the soil by the rays of the scorching sun. Unless this organic matter is returned to the soil either by plowing under green cover crops or by direct application of manure, it is not many years until we are unable to secure anything but a clod mulch. In other words, the texture of the soil depends directly upon the amount of organic matter it contains. But important as this fact is, it is not as important as the fact that all plant food in the soil is made availabe for plant use through the action of soil bacteria. Decaying organic matter is the food of these bacteria and when it is deficient in the soil as a result of being "burned" out by the rot rays of the sun, these bacteria cannot exist in numbers large enough to prepare sufficient plant food to provide for a normal growth of the trees. The result eventually is a decreased fruit yield. In localities of limited rainfall or available moisture, during the growing season, this form of orchard culture will undoubtedly prove not only the best practice but the only feasible practice that could be followed with any degree of success.

Many orchards are located in irrigated sections or localities having an abundant rainfall, and the available moisture during the growing season is not the limiting factor. Orchards so located should consider the problem of decreased labor outlay and increased profits as a result of more diversified orcharding.

The kind of diversification in orcharding to be used is necessarily a local and individual problem, but, generally speaking, there are three way of accomplishing the desired result.

1. Growing non-leguminous intercrops.
2. Growing various types of fruit harvested at different periods.
3. Raising live stock on legume cover-crops.

While intercrops of various kinds, ranging from vegetables to grains, have proven profitable in young orchards, the question of continued fertility must be considered in mature orchards. In addition to this, the labor outlay is usually materially increased and the market must be very favorable if the profits are to continue.

The growing of various types of fruit harvested at different periods offers one of the best forms of diversification for the fruit grower; since, by this system, the overhead expense can be distributed over an extended period and cash incomes are received at different periods of the year. Picking and packing may be accomplished by a smaller crew. Diversification by combinations of fruit culture, such as strawberries, bush fruits, cherries, peaches, plums, pears and apples adapted to the locality will do much to eliminate the possibility of lean years. The maintenance of an acreage which guarantees economical production is naturally a problem that enters here.

It has long been recognized that a permanent system of agriculture must rest on livestock and this fact should lend weight to the practicability of raising live stock in connection with orcharding. The pasturing of legume cover crops has proven more profitable than cutting them for hay. The experience of Mr. E. A. Gammon, of Hood, California, is interesting in this connection. Mr. Gammon's 80-acre irrigated pear orchard was planted in the fall to vetch and Japanese clover. In the spring fifteen sows were turned in the orchard to pasture and later a band of Hampshire sheep. The orchard was pastured throughout the

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# The Use of Powder in Blasting Orchard Tree Holes

BLASTING out tree holes in which to set an orchard is becoming more prevalent. Experiments in planting fruit trees in ground that had been blasted or spade-dug have shown remarkable results in favor of the former way of setting fruit trees, particularly in ground where the soil was very hard. The use of blasting powder in planting an orchard is not new. In 1910 the DuPont Powder Company began to promote the use of explosives in planting new orchards and in rejuvenating old ones. The idea, however, was not original with this company.

Nearly a quarter of a century ago, near LaMesa, Cal., ground was blasted for apple three planting, because orchardists found the work of planting with a spade in the hard soil in that section too difficult. The experiment proved a success. The trees thrived and bore exceptional crops of apples for many years. Later other orchardists and farmers in different sections of the country used the same method in preparing a home for tree roots and there are records of such plantings, from eleven to twenty years ago before the idea began to spread.

After the idea began to be known extensively throughout the country, many farmers and orchardists tried the new plan on a small scale, and now because of the great success attained in planting orchards in this way, thousands of fruit trees are being planted annually in blasted ground. Many of America's leading orchardists and nurserymen now plant exclusively in this way. In fact, blasting is said by experts in the matter to always produce the best results except in soil that is naturally loose and sandy to a depth of several feet. In such soil, blasting is not advantageous except for the elimination of fungus and nematoid troubles.

**What Blasting in Orchards Accomplishes.**

1. It mellows the ground to a depth of five or six feet and throughout a circular area ten to twenty feet in diameter, making it easy to dig the hole and plant the tree correctly.

2. It creates a porous, water-absorbing condition in the subsoil that makes the tree drouth-proof, stopping the big, first year loss, and invigorates growth.

3. It makes root growth easy and makes tons per acre of new plant food available, hence speeds up the growth of the tree and makes it fruit earlier.

4. It creates drainage and prevents stagnation of water on surface.

5. In old orchards that were planted by the old methods and have ceased to bear well, it is of great value in rejuvenating the old trees, causing them to yield heavily.

6. It destroys fungus, nematode, and other orchard soil diseases, hence makes it possible to plant new orchards where old ones have been removed without waiting several years to rest the land and get rid of the diseases.

In studying comparative costs of planting fruit trees, the investigator is confronted with widely varying figures and methods. There seems to be no machine for planting fruit trees such as a corn drill, but the method of some planters approximates the work of a machine in speed, if not in efficiency. They lay off the site of the proposed orchard in 20-ft. to 40-ft. checks, depending on the kind of trees to be planted. Cross furrows are plowed through the field, marking it off in squares.

One man drives along a furrow with a wagon-load of trees, another lays a tree near each of the furrow intersections, and a third stands the tree in the intersections, kicks some soil over the roots, tramps it down, and moves on to the next intersection. This method expresses a touching confidence in nature, but results indicate such confidence is misplaced.

A tree that survives such treatment must have as many lives as the proverbial cat, and if it lives, how many years must elapse before it bears any fruit? What grade of fruit can be expected from a tree aged and bent with the fight for existence before it saves strength enough to bear at all?

Going to the other extreme we find a horticulturist advising: "Forget you are about to plant a tree and imagine you are going to bury a horse, and dig a hole accordingly. Remember you can plant it only once, and its health and growth, the age at which it begins to bear, and the quantity and quality of fruit borne, depend chiefly on the care and thoroughness used in planting it."

Six-year-old tree planted in a blasted hole.

Up to a few years ago, the method followed by most good orchardists was to dig a hole seldom more than two feet in diameter and 18 inches deep, then plant the tree in top soil or a mixture of top soil and subsoil. Under this system the loss the first year ran from 25 percent to 50 percent, depending on soil and weather conditions. Then tree planting with explosives was taken up by a few orchardists who realized the shortcomings of the ordinary methods, and the necessity of cutting down first year losses, and speeding fruition.

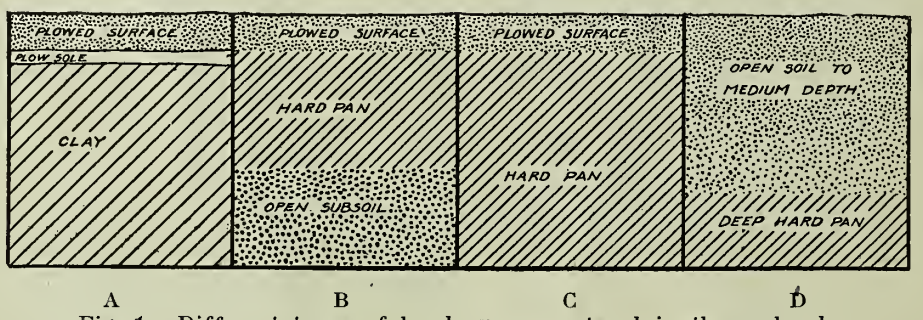


Fig. 1. Different types of hardpan encountered in the orchard.

The first objections to the new method were largely financial. The cost of explosives, blasting cap, fuse and labor ran from 8c to 15c per hole, whereas trees could be planted with a spade for 3c to 5c per hole. The trouble with this comparison is that the work performed is not the same, hence costs should not be compared.

The question involved is, how soon does the planter want a return from his investment and how large a return? The only way to compare costs is to consider the profit sought and which is the cheaper way to get it.

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Six-year-old tree planted in a spade-dug hole.

Fig. 2. Punch for making the bore holes. This is driven in with a heavy hammer.

# The Regeneration of the Prune—A Prediction Fulfilled

By H. S. Gile, Salem, Oregon

[Editor's Note.—The article printed below was written for Better Fruit by Mr. H. S. Gile of Salem, Ore., and published ten years ago. It is interesting to note that the predictions of Mr. Gile, who has always been a firm supporter of the superiority of the Oregon prune and the future market for it, have come true. The production of Oregon prunes in 1918 reached nearly 60,000,000 pounds and it is believed if it were doubled this year there would be a demand at profitable prices that would absorb it all. While land values in the district mentioned in this article have become higher, there is said to be an opportunity to still purchase good prune land at $100 an acre and even less than this figure, in the Willamette valley. Prices for bearing orchards are considered conservative considering their income producing power at the present time. In this section as in others the motor truck has lessened the handicap of distance from shipping points. Although there has been a marked improvement in the construction and operation of evaporation plants, the cost of labor and materials have increased. But, comparing income and cost with former years, the grower is receiving a much greater return. Owing to the scarcity and high cost of labor, cheaper methods of packing fresh prunes have been adopted. This eliminates much of the hand work and consists in using a receptacle called a suit case box in place of the hand packed four basket crates. The suit case box is made with one side open into which the fruit is carefully poured and settled solidly into place when the side is nailed on. It is true that the prices of all fruits have appreciated, but considering the low ebb to which the prune had fallen the increase in price and demand for none of them is as great as the prune, with the exception of the loganberry.]

APPLES, pears, cherries and walnuts have been so much to the front during the past few years that the man who would venture to advocate any other variety of fruit, to say the least, would be very much out of fashion, if indeed, he could expect to receive any attention whatsoever. The writer has been from the very inception of the industry, a firm believer in the Oregon prune, and has never forsaken nor been turned aside by the fabulous tales of wealth in growing and marketing six-dollar apples and ten-dollar pears.

That this great Northwest is peculiarly adapted to the production of many varieties of fruit is no longer questioned, and experience has clearly shown that certain localities are especially adapted to certain fruits, and still further that certain varieties of these special fruits do better in specific localities and at different elevations; hence, there is no occasion of rivalry—certainly not for jealousy—because the Hood River district may grow to perfection a certain type of apple, and the Medford district may produce to just as great perfection Comice and Bartlett pears. And while apples, pears and all of the deciduous fruits, berries, nuts, etc., are produced in a great abundance and to a more or less perfect degree in the Willamette Valley, it also remains for this great valley to win and to hold the reputation of growing, preparing and selling the finest prunes grown anywhere in the wide world. The growing of this fine fruit is still in its infancy; we have only touched the fringe of that which will be done in the future, as the real merit of this fruit becomes more widely and generally known.

Salem is the most important center for both marketing and growing the Oregon prune. Orchards cover many of the elevations surrounding the city, and especially in the Liberty-Rosedale district, from four to eight miles south of the city, where the country is given over almost entirely to prune orcharding. Fine land in this district, splendidly adapted to this particular branch of horticulture, can still be had for $100 per acre and less, according to location. In fact, full bearing orchards can be bought for less money than they are actually worth, simply because the owners have not yet awakened to the great future which is surely in store for this industry, and have not yet learned to ask the fabulous prices which are being paid for orchards of other varieties of fruit in other districts, and possibly they have scarcely even figured the actual returns upon any fixed acreage valuation for their orchards. Western Washington may be classed with the Willamette Valley in the production of a high grade, cured prune, though not able to produce crops so regularly as the higher elevations in the best valley districts. Eastern Washington, Idaho and certain sections of Eastern Oregon also grow prunes (Fallenburg plums) which possess less merit for curing, but have fine canning qualities in their fresh state and consequently are shipped green almost entirely. For green shipping the fruit

Average type of small prune dryer in Douglas County, Oregon.

must be very carefully picked from the trees and should be so handled as to retain as much as possible of the natural bloom of the fruit. It is then carefully placed in baskets holding about five pounds each; four of these baskets constitute what is called a crate. The crates are then, as quickly as possible, placed in refrigerated cars, spaced and stripped so that each crate shall have a free circulation of cold air upon all sides of it, and in this condition prunes will carry in perfect condition to almost any market in this or foreign countries. On the other hand, fruit of the same variety grown in Western Washington and in the Willamette Valley will not carry so well, but possesses all of the elements which go to make up a rich cured product, and it is grown exclusively for that purpose.

The ordinary orchard contains from fifteen to forty acres, although there are two or three tracts in the valley much larger. For an ordinary sized family a thirty-five to forty-acre orchard is about the most profitable size. One man and team will do the work of cultivation comfortably and have time for other work. Outside help will be required for a few days during the winter spraying, and possibly some assistance will be needed at pruning time, but very little money will be expended for labor outside of the one man and one team until the time of gathering and curing comes on. The orchardist will then pay from five to six cents per bushel to the men, women

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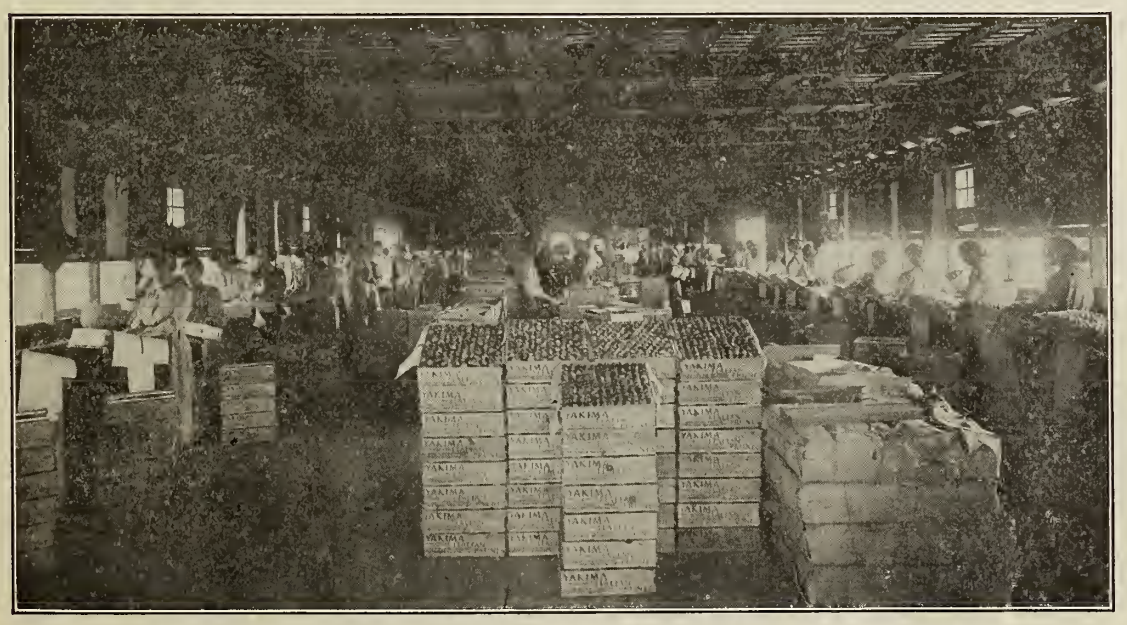
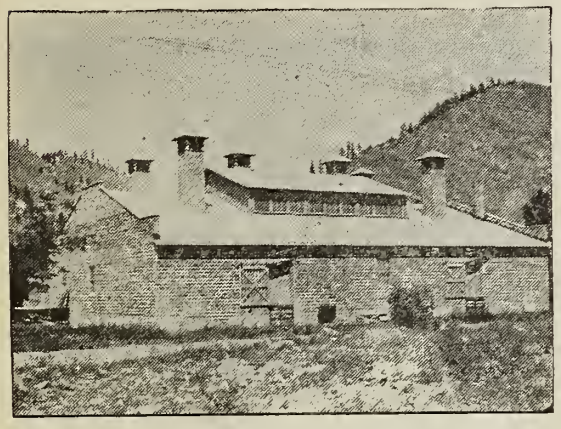


Packing fresh prunes at Toppenish in the Yakima Valley, Washington.

# Well Built Storage House Valuable Investment

THE building of apple storage houses in the Northwest is being engaged in on a larger scale this year than at any other period in the history of the fruit industry in this section. In almost every apple raising district storage houses are being built, and interest in proper construction to secure the best results from common or air cooled storage is keen. In last month's issue, BETTER FRUIT published an article written by F. W. Allen, Assistant Horticulturist in Fruit Storage Investigations of the Bureau of Markets of the United States Agricultural Department that attracted widespread attention among western fruitgrowers and fruitmen.



An apple storage house built along good lines. Note the intake doors near the ground level, the slat doors above and the numerous and large outlet flues.

Mr. Allen has taken a deep interest in the matter of securing the kind of construction in apple storage houses that will secure the best results and incidentally save growers many dollars. Many mistakes have been made in the past in the construction of these houses owing to lack of information and the idea that most any kind of a storage house would do. This idea however is becoming a thing of the past as is shown in the accompanying illustration of the latest type of storage house recently completed in a Washington apple growing district. It will be seen at a glance that the construction of this house is complete and substantial, and that it should prove a valuable investment to its owners.

# Fertilizing and Topping Strawberry Plants

**By Gordon G. Brown, Horticulturist, Hood River Experiment Station**

THE strawberry harvesting season is over and the grower must turn his attention once more to problems of fertilization, cultivation, topping, irrigation, etc.

A good deal of data has already been collected regarding the use of commercial fertilizers for this crop as far as spring applications are concerned. Little well established data is yet available bearing upon the subject of applications after the strawberry harvest. However, the information thus far collected seems to support the idea that applications put on after the berry harvest give larger yields and firmer berries than applications in early spring or at blooming time. This applies especially to the use of nitrate of soda and sulfate of ammonia, both of which are high in their readily available nitrogen content.

The aim in this brief article is to help the grower judge this matter for himself. I would recommend, where plants are somewhat lacking in vigor, a condition which may have been brought about by an insufficient amount of soil fertility, lack of irrigation, cultivation or by advanced age, that a small application of nitrate of soda be put on soon and thoroughly hoed in. One hundred and fifty to two hundred pounds per acre would be sufficient if properly applied. In some cases 100 pounds per acre could be considered sufficient.

This may be followed by another application next spring of a similar amount. Whether or not this second application is necessary would depend largely upon the response secured from the first. The great problem that confronts the berry grower is to get a sufficiently large crop to insure financial success. This means many blossoms maturing into large fruit. On the other hand, unless great care is exercised in fertilization, especially with nitrate there is a danger from soft berries of poor shipping quality. During a short season when extremely hot weather prevails, berries thus grown do not stand up well. However, there are few cases where at least one application of such fertilizer will not pay, and as already suggested the information at hand appears to favor applications after berry harvest. The evidence supporting this is not final however.

Another problem upon which the station is working is that regarding the best time of topping and irrigating. Some growers withhold topping from two weeks to a month after the end of the berry harvest. Others top the plants immediately and continue irrigation. Several growers claim to have checked up this matter pretty closely and prefer the latter plan. In no case allow the plants to dry out.

## The Walnut as a Profitable Dooryard Tree

By E. C. Apperson, McMinnville, Oregon

MY first experience with the walnut tree dates back about twenty years, when we purchased two lots in the city having a total area of 100x 120 feet. Mrs. Apperson at that time requested that the shade trees be chestnut and black walnut trees in our parking strip, and the agent of the Oregon Nursery Company who called upon us and entered our order for these trees, insisted that we include in the order one English walnut tree. We accepted his suggestion and purchased a seedling tree, which we planted in our dooryard. It was only a few years, I think not more than four or five, until this English walnut tree began bearing, and it has borne continuously each year since, each succeeding crop being larger than the previous year.

The success of this one tree gave me considerable encouragement in the culture of English walnuts, and some ten or eleven years after the original planting, Mr. Payne, of California, came through the valley and I had him top graft the black walnuts that were in our parking strip into Vrooman Franquettes, since which time our trees have produced nearly enough revenue to pay the taxes on our home property. We have quite a large comfortable home and the taxes on this property at the present time are approximately $115 per year.

Upon our dooryard lots above referred to we have one seedling tree about twenty years old, and four black walnut trees, top grafted in the Franquette variety of English walnut of the same age, in which the top grafts are now about ten years of age, and we harvested in the year 1918, 454 pounds from these five trees. The seedling tree alone produced 209 pounds, the greater portion of which my daughter sold at 27 cents per pound, while some of the Franquettes she sold at 32 cents per pound, so if we had marketed all the nuts grown on our parking strip and dooryard, we would have realized approximately $134. This is the largest yield we have ever had, and also the highest price we have ever received for the nuts.

Some few years ago I made a statement before the Walnut Growers' Association of what my trees were then doing, and introduced the slogan, "Let your shade trees pay your taxes," and I am pleased to say that I still believe this is a good slogan to follow, and if every family would place a few English walnut trees around their dooryard, either in the city or country, it would go a long ways towards paying their taxes. The walnut business I think is developing rapidly, and the possibilities of it are now being fully realized by the Oregon Agricultural College and the progressive people of our state.

**$1,600 From 1½ Acres of Loganberries.**

In showing what loganberries are doing for the growers in the Salem district this year, the return to one grower can be cited. D. L. Hopkins has a patch of these berries about an acre and a half in extent from which he will harvest ten tons of fruit. At the prevailing prices of eight to nine cents a pound which growers are receiving, Mr. Hopkins will get a gross return of $1,600 for his berries. The patch was planted about five years ago and commenced bearing when it was two years old.

# Timely Topics and Advice for Fruitgrowers

FIRE blight, the most fatal of all fruit tree diseases, is reported to be making its appearance in some of the fruitgrowing districts of the Northwest and growers are being warned by horticulturist experts to watch the situation closely. Control of this disease can only be obtained by cutting out and destroying the diseased parts of the trees. In cutting for blight, cut below all visible evidence of the disease to prevent its spread and burn the cuttings. Tools used for this purpose should be disinfected with corrosive sublimate 1-1000. Small quantities for disinfecting purposes may be made by dissolving two tablets in a pint of water. The solution should be kept in a wooden or glass receptacle.

Growers should remember that to obtain the best results in ridding orchards of anthracnose they should be sprayed before the fall rains set in. The spraying should be done early in the fall just before the fruit is picked or just after. If the weather remains dry it will be better to spray just after the fruit is packed, but if not spraying should be commenced at the first sign of rain and be continued between showers if necessary. The sprays that are most effective are the Bordeaux and Burgundy mixtures.

Have all your arrangements for the fruit harvesting season made well in advance of the time to commence picking and packing. If you have the proper amount of equipment, see that it is in repair and easily available for immediate use. Engage your pickers and packers. If you are compelled to purchase equipment, do it as early as possible as indications are that the demand for orchard equipment of all kinds will be very heavy and may run short later in the season. By being prepared for the harvesting season early you may save many dollars, due to weather or other conditions that frequently bring with them uncertainties in getting the fruit crop into the packing house at the right time and in the best condition.

If your orchard needs fertilization from green plant life bear in mind the planting of your cover crop and do not neglect to get it in at the right time. Alfalfa, clover and vetch will answer this purpose in most instances in well watered districts. For unirrigated districts and where the rainfall is light you would do well to communicate with the agricultural experiment station in your state as to what kind of cover crop to use in semi-arid regions.

The late fall during a period of dry weather is the most advantageous time to spray for Jose scale. Effective work with the sprayer in the late fall will control scale just as well as if applied in the spring. Lime-sulphur at a strength of 1-8 should be used and every part of affected trees should receive a thorough coating. On account of the ground being in better condition in the late fall or early winter for spraying operations many orchardists are now applying the spray for scale at that time instead of waiting until spring when the mud and rains interfere seriously with the work.

If you are thinking of doing any fall planting, you will have to get your orders in early. Nursery stock is both scarce and prices are rising. Stocks of some varieties of fruit are almost out of the market and others can be obtained only in limited quantities.

If your orchard is not bearing well, although the bloom was heavy, you should investigate. You may find that while your trees are apparently in a healthy condition, they are lacking in the proper kind of plant life nourishment to form fruit. In many instances this can be remedied by the application of nitrate of soda or some other equally good chemical fertilizer. Pollenization may also be deficient in which case pollenizers should be supplied by top-grafting and the process also assisted by the introduction of bees and other methods. Pollenization is not a matter of guess work any longer. Experimental work carried on by C. I. Lewis, horticulturist at the Oregon Agricultural College, and other leading men engaged in this work, shows conclusively that lack of pollenization and also proper fertilization can be remedied if progressive methods are adopted.

Peach leaf curl may have appeared in your peach orchard and you are wondering what you can do to eradicate it. You can do nothing at the present time as the period has passed for treating it. The control of peach leaf curl is simple. It can be prevented by a single thorough spraying in the later winter or early spring before the leaf and blossom buds begin to open. H. P. Barss, plant pathologist at the Oregon Agricultural College, says that the first favorable opportunity to spray for this disease should be taken advantage of and that Bordeaux mixture is the most effective. This spray should be applied at a strength of 6-6-50 and every bud on the tree should be covered thoroughly. Very good results have also been obtained in controlling peach leaf curl with lime-sulphur, one part of the concentrated solution to eight parts of water. If there is San Jose scale in the orchard as well as peach leaf curl, growers are advised to use the lime-sulphur, as Bordeaux will not control the scale. The best time to do this work is in the latter part of February.

Probably the best wash for apple tree borers is a thick coat of paint made from raw linseed oil and pure white lead. Remove the earth for a distance of three to four inches from the base of the tree, scrape off the dirt and loose bark scales, and, after worming, apply to the exposed trunk a thick, uniform coating of paint to a distance of about a foot above ground.

## What They're Doing in California

The California State Horticultural Commission has grown to such an extent that it is necessary to have an expert to look after the various funds and H. W. Levers has been appointed to that position.

New Zealand fruitgrowers have adopted the standard berry pack of California, prompting the horticultural commissioners of that state to remark that our fruitgrowing friends in the Antipodes are not slow to take to a good thing.

Many counties of California are taking up rodent control along systematic lines suggested by the state horticultural commission. In Madero county the board of supervisors has appropriated $10,000 for this purpose.

Grasshopper control has become a matter involving the necessity for organization in California. In Sutter county two organizations have been formed for this purpose and 15 tons of poisoned grasshopper bait are being utilized in this particular section which comprises an area of 9,000 acres of pasture and grain fields bordering on fruit lands.

R. S. Wolgun of the Bureau of Entomology, State Commission of Horticulture, has perfected and published a new dosage schedule for the use of liquid hydrocyanic acid on citrus trees. Mr. Woglun was the pioneer in advocating the "gassing" of citrus fruit trees which has resulted in a saving of many millions of dollars to the fruitgrower.

A weed control campaign started by the California State Horticultural Commission last year was so successful that reports from a number of districts this year where it was instituted state that few if any weeds can be found. The good work was accomplished by a force of men which thoroughly covered the districts destroying all noxious weeds.

Codling moth injury to the extent of 15 per cent is said to prevail this year in some of the pear shipping districts of California. A rigid inspection, however, is reported being made in these districts and all infected fruit withheld from shipment. Owing to the largely increased crop, the percentage of moth injury is reported to be not any greater than in former years.

Heavy plantings of all kinds of fruit are reported from California, owing to the high prices being offered by canneries. In San Joaquin county the planting of pears was nearly double that of previous years. The total number of all fruit plants set out was 200,000. The requirement of the State Horticultural Commission that all nurserymen must be registered is said to have resulted in a fine grade of stock being furnished and few trees had to be condemned. The diversity of fruit grown in this county is shown in the report of the plantings, which is as follows: Ornamental, 15,700 trees; berries, 3,937 vines; pecan, 145 trees (two acres); loquat, 21 trees; nectarine, 367 trees (five acres); quince, 195

trees (two acres); fig, 2,460 trees (32 acres); olive, 3,026 trees (41 acres); grape, 14,529 rooted and cuttings; persimmon, 35 trees; walnut, 1,937 trees (17 acres); lemon, 151 trees (two acres); oranges, 901 trees (12 acres); cherry, 21,752 trees (294 acres); pear, 34,088 trees (460 acres); plum, 7,798 trees (105 acres); prune, 26,065 trees (352 acres); peach, 16,564 trees ,224 acres); apricot, 12,163 trees (164 acres); almond, 36,676 trees (463 acres); apple, 848 trees (12 acres); pomegranate, 15 trees; chestnut, 156 trees (2 acres).

For the year beginning July 1, 1917, and ended July 1, 1918, the state of California appropriated $5,000 for the enforcement of the Standard Apple Act. No appropriation was asked or made after July 1, 1918, for the reason that the revenue accruing from the sale of Apple Grade Stamps, at one-half cent each, reached the sum of $13,543.66, against an expenditure of approximately $12,500 used in the enforcement of the act during the apple shipping season of 1918.

Wine grape growers are being offered $25 per ton for their crops and buyers are promising to take all that are offered, pay cash on delivery and to furnish the lug boxes. The grapes are to be dried and sent out of the United States, where the proper solutions will be added and made into wine. It is claimed none of the nutriment of the grape is lost in the drying process. It has been tried.

Five thousand dollars from a ten-acre Climax plum orchard five years old, near Lindsay, was the return that W. E. Porter received for his crop this year.

A heavy crop of figs is reported in the Sultana district. Figs are selling on the Eastern market from 18 to 50 cents a pound, while cannery prices in the field are 9 cents a pound.

The new process refrigerator cars being used for fruit shipments from California are said to be giving good results, and are likely to supersede the old style cars. The cars are equipped with outside electric thermometers so that the temperatures inside can be read at any time without opening the cars.

Tomato blight is reported generally throughout tomato growing districts and growers are expecting to receive $18 per ton for their outputs. Climatic conditions this year are said to have been particularly adapted to this disease.

Sixty dollars per ton, said to be the highest figure paid for California Elberta peaches this year in large lots, was recently received by a fruitgrowing company in the Turlock district.



The old story of the fine fruit on the top and the poor quality in the bottom resulted in the condemning of half a car load of plums in the Fresno district recently. The shippers of the fruit were allowed later to repack the shipment according to the fresh fruit standardization law.

## Bits About Fruit, Fruitmen and Fruitgrowers

Reports are to the effect that the Fruit Growers' Agency is receiving strong support this year. The Yakima association has undertaken to secure 1,000 members for the agency and other districts are falling in line to secure for this organization a much larger increase in its membership. It is said that with Yakima in line the Northwest will be solid in its support of the agency.

Information from authoritative sources state that there will be no change in car loading specifications for apples this year with the exception of extending the 1x6 middle upright to within two inches of the ceiling. The other requirements proposed by the Railway Administration have been postponed one year. The new apple box specifications adopted by the Railway Administration provide for the minimum sizes of ¾ inch ends, 5-16 inch sides, and 3-16 inch tops and bottoms with a 1-32 of an inch variation allowed. If the dimensions do not meet with these requirements a higher rate will be charged. These specifications, however, do not go into effect until next year.

A recent cablegram from Consul General Skinner, London, states that the general license for the importation of apples and canned fruits into the United Kingdom has been extended to April, 1920.

Small fruits in Canada with the exception of currants are a very light crop this year. The apple crop is more promising, especially in the Maritime Provinces. The crop in British Columbia indicates a yield estimated at an increase of 50 per cent over last year. In Ontario it is not so good varying from 50 to 80 per cent of a normal crop.

The shipment of new apples commenced early in July. One hundred and fifty-eight cars were put on the market in the United States the first week and 249 the second. Apple exports from April 30 to July 1 this year were 1,546,989 barrels (old stock). The shipments were largely sent to England, Norway and Sweden.

The apple is the king of fruits in value of crop as well as in the estimation of apple lovers, according to information gathered by the United States department of agriculture. For the apple crop of 1918 a value of $230,000,000 has been estimated, or nearly three-eighths of the value of all fruits.

According to recent reports received from California the prices being paid there for fruits for canning are considerably higher than those paid last year. For apricots last year the average was $65 the ton; this year it is between $100 and $110 the ton; yellow freestone peaches last year, $37.50; this year, $45 to $60; yellow clings last year, $50; this year $85 to $110; Royal Anne cherries last year, $155, and this year, $240; pears last year, $60; this year, $85; plums last year, $50; this year, $75 and $100.

The opening prices for California prunes announced recently by the California Prune Growers' Association caused widespread interest in the Northwest as many producers in the latter section were waiting for California to set the prices before selling. The California prices are 16 cents a pound on 30-40s, 14 cents on 40-50s, and 12 cents on 50-60s. It is stated that in some sections of Oregon prunes have been sold at ½ cent a pound higher for the same sizes.

Much interest is being manifested by fruitgrowers throughout the country in the operations of the American Fruit Growers, Inc., a $100,000,000 corporation that is acquiring orchard property in both the deciduous and citrus fruit belts of the United States, but about which little was known. According to a recent statement of this company its fundamental object is to organize and finance the fruit and vegetable industry on a stabilized basis. The statement says that the fruit and vegetable industry in the United States represents in gross volume and value the most important item in the food supply of the nation, excepting only cereals and meat, the total annual value of which has been estimated as high as $3,000,000,000. The large export demand for cereals and meat, this

statement says, is causing the American public to increase its proportion of fruit and vegetables in the daily diet with the result that during the next five years the public must pay extremely high prices for tree fruits and probably also for vegetables. Fearing that these high prices to the consumer and the excess profits tax will result in a lessening of the production, the company states that it is acquiring ownership to fruit and vegetable properties in those districts in the United States which have proven, over a period of years, most certain in the matter of quantity and quality production. The American Fruit Growers, Inc., has already acquired producing properties aggregating $3,500,000. It has an authorized capital of $50,000,000, and had its inception in the hands of Crutchfield & Woolfolk, one of the largest fruit and vegetable handling firms in the East. James S. Crutchfield is president of it, R. B. Woolfolk vice-president, and Charles J. Brand, formerly with the Bureau of Markets, is vice-president and general manager. The other officers are Chester Tyson, of Pennsylvania, production manager; W. M. Scott of Virginia, assistant production manager; William H. Baggs, of Pennsylvania, chief of distribution, sales and advertising; H. E. Heitman, regional vice-president for Florida; T. H. Peppers, regional vice-president for California; Reginald Parsons, regional vice-president for Washington. The main offices of the company are located in Pittsburgh. The middle western interests of the firm are in charge of W. B. Clore, who is located in Chicago. The company is financing its operation without the issue of bonds or underwriting expense and proposes to list its securities on the Pittsburgh Stock Exchange.

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Northwest apple growers have not looked upon the far southern state of Georgia as the successful producer of large quantities of apples, but such is the case. The new apple producing section is located in Habersham and Raburn counties. One of the orchards in this locality is 300 acres in extent, 200 acres of which are in bearing and last year produced $80,000 worth of fruit, which paid the stockholders a dividend of 25 per cent. There are 840 acres of apples in this district which are coming into bearing this year and 6,000 acres altogether which it is said are suitable for fruit. The orchard project is owned by a company known as the Appalachian Corporation, which owns a large distributing warehouse in New Orleans and sells its apples direct to the wholesaler or retailer. Louis B. Magid, who is at the head of the company, says that the New Orleans plant and Georgia orchards are the first of a number of projects which will be established to bring about the cheapest and most direct way of distributing fruits and vegetables to the retailer, hence to the consumer. Mr. Magid says that he doesn't consider the middle or commission man necessary in the distribution of foods.

Advices recently received from the Atlantic Conference Lines are that apple freight rates on steamers sailing from New York, Philadelphia, Boston and Baltimore to Liverpool, London, Hull, Manchester and Glasgow during the coming season will be 85 cents per box and $3 per barrel for ordinary stowage and $1 per box and $3.50 per barrel on refrigerator stowage.

The annual convention of the International Apple Shippers' Association will be held at the Hotel Phister in Milwaukee, Wis., August 12-15. Among other important matters to be taken up it is expected that the question of increased freight rates on fruit will be discussed at length at this meeting. W. L. Wagner, of the firm of G. M. H. Wagner & Sons, is chairman of the committee of arrangements. It is expected that the Northwest will be represented by a good sized delegation.

The Vegetable Growers' Association of America will hold its annual meeting at Detroit, Michigan, September 9 to 12. This organization is composed of many of the leading vegetable growers of the United States and Canada. The attendance usually exceeds five hundred and it is expected that this year there will be a larger number than ever before.

## Report of Apple, Pear and Peach Crops for July

### APPLES.

A sharp decline in the condition of the New York apple crop during June is the principal feature of the special commercial apple report released by the Bureau of Crop Estimates on July 9. The condition of the commercial apple crop for the United States as a whole now indicates 24,454,000 barrels as compared with 24,584,000 barrels in 1918. New York state now promises less than one-third of last year's production. The New England states have very good prospects, while the Middle Atlantic regions, including Pennsylvania, Maryland, the Virginias, New Jersey and Delaware, have on the whole about 20 per cent less than last year. The Middle West, particularly Missouri, shows an increase over 1918.

The very heavy production of boxed apples largely offsets the light crop in New York. Washington will probably lead the states in commercial production by a large margin. The west as a whole produced its largest crop or 29,000,000 boxes as compared with 21,309,000 boxes in 1918 and 25,689,000 boxes in 1917.

In the Pacific Northwest the state of Washington will lead in the production of apples with a crop that is now estimated at 19,500 cars as compared to 17,000 cars in 1918. The total apple crop in Oregon for 1919 is estimated at 3,936,000 boxes as compared to 2,013,000 boxes in 1918. In Idaho conditions there now indicate that this state will ship 4,000 cars this year or 500 cars in excess of the bumper crop of 1917, giving Idaho the largest apple crop in the history of the state. The crop in Utah is estimated at 475 cars or 80,000 boxes less than the crop of 1918. The estimate for the crop in Montana is about 450 cars, most of which will be shipped from the Bitter Root Valley. The California crop is now expected to be about 3,672,000 boxes as against 3,381,000 boxes in 1918, and the crop in New Mexico is estimated at 600 cars. The Colorado crop is estimated at 3,400 cars.

### PEARS.

A heavy pear crop in California and the Pacific West generally, contrasted with poor conditions in such important pear states as New York, Michigan, Illinois, New Jersey and Delaware, is the most important fact brought out in the special commercial pear report. The figures given apply only to that portion of the total crop which moves to market in carload and express shipments or by truck. The total commercial pear production for the United States is now estimated at 7,691,000 bushels as compared with 7,589,000 bushels last year, or 1.3 per cent increase as compared with 1918.

California, which is the greatest pear producing state in the United States, it is estimated will have a crop this year of 4,000,000 bushels as compared to 3,814,000 bushels in 1918. Fifty per cent of this production is usually canned or dried and 50 per cent shipped fresh. The Washington crop of pears promises to be in the neighborhood of 1,560,000 boxes or 260,000 boxes more than last year, while Oregon is estimated to produce 575,000 boxes or 70,000 boxes in excess of 1918. The shipment from Colorado is expected to be 500 cars, while Utah, where the pear production is limited, will ship, it is estimated, 35 cars.

### PEACHES.

A 50 per cent decrease in the commercial peach forecast for New York, Michigan and Ohio during the month of June is the salient feature in the July special peach report for the United States. The heavy drop in the northern peach belt was due to peach leaf curl and brown rot in New York, peach leaf curl in Michigan, and decreased acreage and peach leaf curl in Ohio. Conditions have been generally unfavorable in all three states.

Brown rot has caused considerable loss among early varieties in the Middle West, particularly in Arkansas, Oklahoma and Texas. The conditions in the Western States continue favorable and almost a full crop is forecasted for the regions west of the Rocky Mountains. California has prospects for a bumper crop.

The July report indicates a total crop of 30,082,000 bushels for the United States as compared with 20,797,000 bushels last year, or 44.6 per cent increase over the light crop of 1918.

### A Practical De-Webbing Device.

Drive tacks or small nails into a large spool or block of wood. Mount same on end of long bamboo or other pole—the longer, the better. Thrust into the web and turn slowly. The projecting tacks or nails will engage and "wind up" the web, which may be scorched, burned or plunged into hot water or crude petroleum.

### Insect Banquet Costs $500,000,000.

The American Forestry Association, through its president, Charles Lathrop Pack, estimates the annual loss from insect pests in the United States to orchard and forest trees as approximately $500,000,000, which does not include losses to foodstuffs from rodents, in field and storage, or from destructive plant diseases.

BETTER FRUIT
An Illustrated Magazine Devoted to the Interests of Modern Fruit Growing and Marketing.
Published Monthly
by
Better Fruit Publishing Company
703 Oregonian Building
PORTLAND, OREGON

## Capitalizing the Fruit Industry

The tendency of several large organizations which have been organized more or less recently to enter the fruit industry seems to be toward capitalization and cutting out the middle, or commission man. The American Fruit Growers' Inc., a $100,000,000 corporation, which has already acquired $3,500,000 worth of orchard property and has options on other large holdings, and the Appalachian Corporation, a company owning orchards in Georgia and Missouri and operating a large warehouse in New Orleans, announce that they are adopting a course to reach the consumer in as direct a manner as possible—that is, that they will sell to the wholesaler and the retailer, but not to the commission man.

The big Southern corporation seems to be doing business on a straight-out producing and sales basis, as it makes no announcement of stock for sale or the listing of its securities on the open market. The prospectus of the American Fruit Growers' Inc., which states that its securities will be listed on the stock exchange, smacks slightly of equivocal benevolence toward the consumer and the producer. One of the reasons that it gives for the formation of its organization is that it fears that the consumer will have to pay extremely high prices for fruit products during the next five years, owing to lessened production on account of excess profit taxes, and that it is taking a course that it believes will stabilize the market.

While the course adopted by this organization may have this tendency, this result can only be determined by its future operations. If these result in making a fair price to both producer and consumer the American Fruit Growers' Inc. will, indeed, have served a great purpose in the fruit industry.

Perhaps it would have inspired greater confidence in the minds of the public, however, if this big company had stated that there never was a time in the history of the fruit industry when the opportunity was so great to capitalize it on a big scale and secure so great a reward. New methods and new practices are making fruit a staple, rather than a perishable product, and it is on the boards for it to take its place in the marts of trade along with the meats and cereals.

The organization of the fruit industry by large corporations on a huge scale may benefit the producer an the consumer, but not if it is conducted along the lines employed by many of the big food handling interests which tell the producer what he can get for his products and the consumer what he must pay for them. The cutting out of the middleman both in theory and practice is correct. But if neither producer or consumer gets the benefit of this cutting out process "what doth it benefit us?"

As it is apparently the plan of the big companies above mentioned to grow their own products, the producer in this case should not suffer. We will await with interest, therefore, what happens to the consumer.

## A Worthy Object

In 1900, and for several years succeeding, the prune industry was at its lowest ebb. A California grower is said to have remarked during this period that the large prunes were more useful than the small ones, as they could be thrown straighter at offending cats and dogs than the small ones.

The history of the prune industry in California is identical with that of Oregon. This condition in the prune industry is ascribed to the maniuplation of the prune operators in California and the lack of distribution and creation of demand. The later regeneration of the prune with its attendant prosperity to growers is credited to the organization of the California Prune and Apricot Growers' Association, which controlled the tonnage, advertised, created the market and set the price at what it considered a fair return to the grower.

Next to the citrus fruits the prune industry is now California's greatest asset in the fruit business. In Oregon it is the greatest asset in the state's entire fruit industry.

Oregon growers are now endeavoring to do for Oregon prunes and other fruits what California growers did for California—to stabilize the industry, to ship Oregon fruits under an Oregon brand and to bring prosperity to the growers and the state in general.

This, in brief, is the whole story of the object of the Oregon Growers' Co-operative Asociation. And its a good story and a worthy object.

## Protecting Oregon Investments

The fear that the large amount of capital already invested in Oregon fruit canning and by-products, plants will be jeopardized by the operations of the Oregon Growers' Co-operative Association is groundless. The primary object of the association is to obtain a fair price for the members of the organization for their fruit products in the various districts. If this is accomplished by selling to manufacturing concerns or other fruit handlers that are already in the business, it will probably not be the policy of the association to enter into manufacturing competition where the return to the grower is satisfactory. Where no plants are established it is the intention of the organization to erect them.

The officers and organization committee of the association are Oregon business men as well as fruit growers. The membership of the association is composed of Oregon citizens interested in the development and prosperity of Oregon institutions. It can be safely assumed, therefore, that these institutions will be fairly dealt with.

## Editorial Comment

Which would you rather he: John D. Rockefeller or a loganberry grower?

Apple prices are soaring and so are freight rates. Don't take it all, railroad men.

The fruit grower who adopts the latest labor-saving appliances these days will accumulate the biggest bank roll.

Jack Frost must be feeling badly. He, no doubt, tried hard, but he couldn't get the Idaho apple crop this year. It's a bumper.

While the "coming back" of the Oregon prune provides H. S. Gile with the opportunity of saying "I told you so," still we are all glad to hear it.

Elbert Hubbard said that fruit was nature's handmaiden in creating optimism. If this is true, it should be on every table in every household.

The apple growers of Washington are spending $500,000 to advertise their fruit this year. That's why the Washingtonians are always forging ahead. They are never afraid to spend a dollar to get two back.

The California State Horticultural Commission is a live institution. Nothing is too big or too small for it to tackle, and it makes a success of it. The liberal appropriations it is allowed, however, are a big help.

Cranberry culture is assuming an important place in the fruit industry of the Northwest, and the most salient feature of this fact is that the Pacific Coast berry is a superior product to that grown in other districts.

The expansion of the fruitgrowing industry of the Northwest is now only a matter of securing nursery stock. It is estimated that the United States is short several millions of trees to supply the normal demand for fruit.

The research work of the Experiment Station of the Oregon Agricultural College is bearing good fruit. Information that this institution has obtained on pollenization and fertilization of fruit trees alone is proving of incalculable value to the fruit grower.

The fruit grower, like the farmer in other branches, doesn't take kindly to the daylight saving "bunk." He can't see why the golf and tennis players, the twilight baseball leagues an the fellows that don't have to get up until noon should run the country. Neither do we.

The silver tongued orators are not all in Congress. When it comes to enthralling a group of fruit growers, Prof. C. I. Lewis, organization manager of the Oregon Growers' Co-operative Association, is some Wm. J. Bryan himself—and he gives them something worth listening to.

# Pacific Coast Cranberry Industry Growing

AT a meeting of the Pacific Cranberry Exchange recently held in Portland it was stated that the Pacific Coast cranberry industry is becoming such an important factor in the fruit industry of the Northwest that it is necessary for the growers to form a more compact organization. To obtain this result it was decided to incorporate and an organization committee consisting of C. E. Griffith, of Portland, Ore.; W. F. Schimpf, of Astoria, Ore., and L. W. Paul, of Ilwaco, Wash., were appointed to take the preliminary steps in the matter. The growers belonging to the Pacific Cranberry Exchange are located in Clatsop County, Oregon, and the southwest counties of Washington. It is estimated that there are now 1000 acres of cranberries under the control of the exchange.

Among the matters discussed at the meeting were a better and more attractive pack, better marketing facilities, wider distribution, and more extensive advertising. The importance of the market for by-products from cranberries was also gone into and it was shown that in some instances there was a greater profit in using the berries for this purpose than in selling them fresh. As an instance it was shown that the juice sold readily at $1.25 per gallon and that a barrel of berries would produce from 12 to 12½ gallons. Many other profitable uses for the by-products from cranberries were also cited.

An attractive and unique box label with the color scheme worked out in the national colors of red, white and blue, and bearing the slogan "Eat No Better Cranberries, and Know Cranberries Better," was adopted by the exchange to be placed on its shipments.

One of the most interesting points brought out at the meeting was the fact that there was no truth in the statement that the Pacific Coast berries do not keep as well as the Eastern berries. It was shown conclusively that with proper care that the Pacific Coast fruit could be kept until late in the summer and that an analysis made by an expert proved that the latter required 30 per cent less sugar for canning purposes than the Eastern berry. This fact is looked upon by coast cranberry growers as a big advantage over the Eastern grown fruit and will be used to educate consumers as to the greater value to them of the western berry for canning and jelly purposes.

While no estimates are available for the entire crop from the Oregon-Washington cranberry growing district this year the crop in the Southwest Washington peninsula section in 1917 was 3500 barrels and in 1918 15,000 barrels. One grower from a little less than one acre in this section last year harvested 206 barrels. Two hundred and fifty additional acres were set to cranberries in the Grays Harbor district this year.

A much greater development of this industry is expected in the near future when coast consumers of fruit become alive to the various uses to which the cranberry can be put and when they also become aware of the superiority of the western grown berry.

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## Cleaning Up the Loganberry Yard

As soon as the crop is picked or shortly afterward the loganberry yard should be cleaned up to insure the best results in fruit the following year. The old canes should be pruned out and a careful search made for anthracnose. This disease affects the canes, leaves and fruit, and if neglected will ruin the patch. The disease can be detected on the stems by spots having a pale center with irregular brown or black margins and varying in size and color. These spots on the leaves have a pale center with broad reddish or purple borders. If the fruit is attacked it dries up when about half grown. The vines, in the last stages of the disease send out a great many canes that fail to bear fruit.

To control anthracnose the old vines should be pruned out just as soon as the crop is off, for the new growth will be infected if they are left until spring. All diseased vines should be burned. In February the plants should sprayed with lime-sulphur or Bordeaux, and six weeks later with the same mixture. Care should be exercised in using Bordeaux, as it is inclined to burn the foliage. These sprays should be applied as follows: Dormant, liquid lime-sulphur, two and one-half gallons to 50 gallons of water; soluble sulphur 10 pounds to 50, Bordeaux 4-4-50. Summer, lime-sulphur one and one-half gallons to 50; soluble sulphur, one pound to 50; Bordeaux, 4-4-50.

Well cared for and properly sprayed loganberry plants will last and bear much longer than the unsprayed plants and at present and prospective prices for these berries, growers can well afford to give them the best of care. In cleaning up the yard this year it will be well for the grower to remember that there will be a strong demand at good prices for new plants and that the vines should be pruned with a view to saving all the healthy tips possible.

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## Shortage of Nursery Stock Serious

Nursery stock for new plantings will be very short this year according to fifty members of the Pacific Coast Nurserymen's Association representing most of the states in the Pacific Northwest, who recently attended the annual meeting of the organization in

Portland. Some varieties of stock, such as apricots, were declared to be almost impossible to obtain while the demand for apple, pear, prune and berry stock was reported to be far greater than the supply. In order to make a more equable distribution of nursery stock it was stated at the meeting that commercial growers planning a large increase in new acreage would be compelled to cut down their plantings.

The program which was an interesting one contained among other topics, "The Elimination of Undesirable Varieties," "Higher Retail Prices," and Stock," "Moulding Public Opinion in Ornamentation," the "Future of the Prune Industry," "Pollenation," and "The Labor Problem."

In the discussion on eliminating un-

desirable varieties it was decided to leave action on this matter in the hands of the individual nurserymen to cull out the varieties they thought were not suited to their districts. Owing to the higher cost of labor and other rising prices it was the concensus of the convention's opinion that it would be necessary to advance prices for nursery stock and an agreement to this effect was reached. To bring about a plan for educational work to promote the planting of more ornamental trees it was decided to enlist the cooperation of the commercial organizations in the various Northwest states and a committee consisting of F. A. Wiggins of Toppenish, E. F. Stephens of Nampa, Idaho, John A. McGee of Orenco, Richard Layritz of Victoria, B. C., C. I. Lewis of Corvallis and Bert Miller of Milton, was appointed for this purpose.

Valuable information was given the members in attendance on the subject of "Pollination," by Prof. C. I. Lewis, horticulturist at the Oregon Agricultural College and also in regard to plans for beautifying highways and private grounds by the planting of ornamental trees. C. J. Atwood, of Toppenish, Wash., presided at the meeting and C. A. Tonneson, of Burton, Wash., was secretary.

It is unofficially stated that not over one per cent of the projected plantings of fruits in the Northwest will be possible this year owing to the shortage of stock on the Pacific Coast and that prices for stock on this account will rule high.

## Offering Higher Prices for Box Apples

Apple buyers in the Yakima Valley, Wash., it is reported, are offering higher prices for boxed apples than 30 days ago. Contracts are being made on the basis of orchard run, in-

cluding all marketable apples produced by the growers. Prices for the different varieties are reported to be as follows: Rome Beauties, Jonathan and Grimes Golden, $1.75 to $2; Winesaps, Spitzenbergs and Yellow Newtowns, $2 to $2.25; Delicious and Winter Banana, $2.50 to $3. Never before in the history of Yakima Valley have contracts for apples been made earlier than August or September.

M. L. Dean, of the Washington state division of horticulture, is authority for the statement that apple prices are on an exceptionally satisfactory basis from the producing standpoint. "It is astonishing the prices that apple growers are being offered," says Mr. Dean. "The lowest grades of Winter Banana apples are bringing bids of $1.60 a box, while extra fancy grades have brought bids of $2.90 and for some packs Eastern bidders have gone as high as $3.10. Apples from the Northwest are very much in demand in Eastern markets and Washington farmers are flooded with offers."

According to reports from Toppenish, Wash., Dick Hart of that place sold his entire apple and pear crop last week to the Richey-Gilbert Company of Yakima for $2 a box straight through the orchard. Mr. Hart says he feels that he received a good price for the fruit of his forty acres.

C. H. Sproat, of Hood River, recently sold his apple crop estimated at 12,000 boxes to Dan Wuille & Co., an English apple exporting firm, for an average of better than $1.75 per box for all grades and varieties. Later sales there, it is reported, were on a basis of 25 cents a box higher than this price.

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**New Cannery Rising at Albany.**

The Puyallup & Sumner Fruit Growers Canning Company which, early this year, announced that it would commence operations in Oregon now has in the course of construction at Albany the first cannery unit of its contemplated structures. The new building has a floor space of 96x208 feet which is being laid in concrete. It is being constructed of wood in rustic design, two stories high, and the boiler room will be 30x30 feet and will house a 125 horsepower boiler. The site for the new cannery is on a three-acre tract acquired by the company between the Willamette River and Water street in East Albany and was selected on account of its adjacency to shipping sidings. The cannery is expected to be completed in time to handle the large tonnage of wild evergreen blackberries in that district this year.

Large acreages of the cultivated berries have been contracted for future delivery and it is expected that the berry tonnage in this district in the near future will be a large one, as the alluvial soil in the river valleys there is especially adapted to berry growing.

# Northwest Fruit Notes from Here and There

**OREGON.**

MEDFORD will have this year the largest and best quality pear crop in its history and this fact is said by growers there to be due to better facilities for irrigation. The Bartletts and D'Anjous are particularly fine and will ripen early. Fruitmen at Medford are optimistic in regard to the future of that district and say that from now on it is bound to be very prosperous and to develop rapidly. Medford will ship between 700 and 800 cars of pears this year and about the same number of cars of apples according to late estimates.

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The National Fruit Company, organized in Oregon with a capitalization of $50,000, has established its headquarters in Portland. The officers are John F. Sugrue, president; Kenneth McKay, vice-president and general manager, and J. H. Conn, treasurer. Mr. Sugrue was formerly manager of the Cashmere (Wash.) Fruit Growers' Union. Mr. McKay was connected with the Fruit Growers' Exchange at Hood River and Mr. Conn until recently was with the United States Bureau of Markets. The new company will operate in all of the states of the Pacific Northwest. on an f. o. b. basis for eastern dealers.

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The Rogue River Valley Canning Company which had been in the hands of a receiver for some time, has changed hands, the new owners being S. S. Bullis and E. T. Skewis, who are now operating it. The price paid for the property which is said to have included 30 acres of tomatoes, was $5,000. H. W. Hoke, former manager for the old company, is in charge of the plant.

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The Hood River Apple Growers' Association recently signed a five year contract with C. W. McCullagh, sales manager of the association, agreeing to pay him a salary of $8,000 per year. The salary of A. W Stone, executive manager of the association, was increased from $3,000 to $4,000 per year.

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P. J. O'Gara, formerly plant pathologist at the Medford Experiment station, was a recent visitor in the Rogue River Valley. Mr. O'Gara is now connected with the American Refining and Smelting Company of Salt Lake, Utah.

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The total number of cars of strawberries shipped from the Hood River district this year was 98. Eighty cars of this total was shipped by the Hood River Apple Growers' Association and 18 cars by the W. R. Woolpert Fruit Co. The demand for fresh berries at Hood River this year was so great that canners experienced great difficulty in securing fruit. Prices received ran from $4.50 per crate for the first car to $3.94 at the end of the season. An average price of $4 per crate was maintained and is believed to have set a new national record in strawberry marketing. Hood River expects to market between 1,500,000 and 2,000,000 boxes of apples this year—its largest crop.

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The Mosier and Dufur sections are booked for an apple crop of 350 cars this year while the Milton-Freewater district is expected to ship 500 cars or twice the number it shipped last year.

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Oregon is expected to harvest a $40,000,000 prune crop this year, the largest part of which is grown in the Willamette Valley. The apple production of the Willamette Valley for 1919 is placed at 500 cars, or twice as many as last year.

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The Bear Creek Orchard, one of the largest commercial orchards in the Rogue River valley, is now in the possession of the Rosenberg Brothers, who recently acquired title to it through the settlement of the estate of their father. The orchard comprises 240 acres, two-thirds of which is in apples and the balance in pears.

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Loganberries have now reached a degree of production in the Grants Pass district where the demand for pickers exceeds the local supply of help and growers are forced to import pickers from the outside. Although the acreage in loganberries at Grants Pass is not very extensive as yet as compared to that in the Willamette valley, it is rapidly growing.

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The fruit tonnage produced in the Salem district is the greatest in Oregon and one of the largest in the Northwest. While prunes lead in the amount of tonnage, loganberries, cherries, strawberries, raspberries, blackberries, walnuts, apples and pears are also produced in very large quantities. In fact, Salem may now claim the distinction of being the Queen City in Oregon fruit production in the state.

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The Hood River Canning Co. was successful in securing a large quantity of cherries during the season which has just closed. The company made its record day's run, putting up more than 10,000 cans in 24 hours. The price paid for cherries was 8 cents and 104 people were employed during the busy season.

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In an injunction suit brought by the Kings Products Company, a fruit drying concern of Salem, Oregon, to force loganberry growers to deliver their fruit at a contract price of 5½ cents instead of selling it in the open market at a higher price, Presiding Judge Bingham rendered a novel decision. He ordered the growers to deliver the fruit at the price mentioned, but directed the drying company to place on deposit with the county clerk the difference between 5½ cents and 9 cents, the amount that the berries were selling for in the open market. At the close of the berry season the case will be tried and the money awarded to the parties to the suit who win. The case grew out of the fact that a slip is said to have been attached to each grower's contract stating that the company would pay the open market price at the time the berries were delivered.

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With headquarters at Roseberg, the Overland Fruit Company has been organized and will grow and market fruit and otherwise engage in the fruit business. The new concern is a stock company.

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Recent investigations by the Experiment Station of the Oregon Agricultural College in the big cherry orchards at The Dalles, which have failed to produce, although the trees were found to be in fine condition, are said to show that the shortage of fruit was due to lack of pollenization. Bings, Royal Annes and Lamberts were planted in solid blocks. On the advice of the experiment station experts it is expected that the condition there will be remedied by topgrafting a number of trees in each orchard to the Waterhouse or some of the other varieties of cherries which will act as pollenizers. The Dalles district produces cherries second to none in Oregon.

**WASHINGTON.**

In an announcement to the raspberry growers President W. H. Paulhamus of the Sumner and Puyallup (Wash.) Cooperative Canning Company told them that the management had already booked for sale this year 68,000 cases of jam containing 24 jars each and expects to sell 100,000 cases before the manufacturing season closes. The amount to be received for this output is estimated at $1,000,000, and the growers have authoried the officers of the canning company to spend $70,000 in advertising to make its brand of jam known in the markets of the world. The company put into cold storage $150,000 worth of strawberries which will be manufactured into jam and asked the growers to furnish twice that amount of raspberries.

According to the latest estimates, Wenatchee will be the banner district in the production of apples in the state of Washington this year. The crop at Wenatchee now promises to be 9,400 cars, 2,800 of which will be Winesaps, 1,700 cars of Jonathans, 1,300 cars Baldwins, 900 cars Spitzenbergs, and 800 cars of Rome Beauties. The Yakima district is estimated at 8,000 cars and the Spokane section at 500 cars. One thousand cars it is expected will be shipped from the Walla Walla district, which last year shipped only 130 cars. Half of the Walla Walla shipment will be Rome Beauties.

Prospects are that Grant County will double up on its apple crop this year according to Horticultural Inspector Darlington, who says that it ought to ship 400 cars as against 200 cars last year.

Wenatchee Valley is said to have suffered many thousands of dollars worth of damage this year owing to the fact that the railroads failed to supply sufficient cars during the cherry shipping season.

Early peaches and apples as well as apricots commenced to move in the Wapato district about the 12th of July and good prices are reported to be ruling. The fruit crop on the Indian reservation in that district this year is reported to be a good one.

The Sumner (Wash.) Index remarks: "The Fruit Growers' Association received a message from Spokane, 15 years ago, saying, 'Send all the raspberries you have.' Spokane couldn't use all of our berries now if the residents ate 'em three times a day and got up in the night for an extra meal."

The first raspberries shipped 15 years ago from the Puyallup district avcraged $1.50 per crate. This year the marketing price was $5.00.

The Shoenberg-Pepper Company, which recently opened a fruit handling establishment at Yakima, is contemplating building a warehouse at Zillah that will be 75x150 feet and is to be finished in 45 days. C. B. Wood, former county horticulturist, is associated with the new firm, which was induced to locate in Zillah by the Zillah Community Club.

The state of Washington ranks sixteenth in the amount of acreage devoted to strawberries for this season. Last year it was the eighteenth state as to amount of acreage. There is now planted in this crop 895 acres as against 870 acres in 1918. Last year the total production amounted to 118 cars, while this year's production was in the neighborhood of 125 cars.

Last year the apple growers of Eastern and Central Washington spent $75,000 in advertising their apples. This year $500,000 has been appropriated for this purpose.

The Sampson-Oliver-Gamble Co., which will enter the fruit handling field in the Grandview district, is building a new warehouse which will be ready for the apple shipping season. The new firm is headed by E. E. Sampson, of the E. E. Sampson Company of Yakima. W. W. Camble will be manager of the Grandview business. The apple crop at Grandview this year is estimated to be between 1,500 and 2,000 cars.

Horticultural Inspector Miller of Yakima county estimates that the entire fruit shipment from that county this year will be about 13,510 cars, divided as follows: Apples, 7,500 cars; pears, 3,000 cars; peaches, 2,500 cars; prunes, 200 cars; cherries, 60 cars, and miscellaneous, 250 cars.

M. L. Dean, chief of the Division of Horticulture of Washington, announces the appointment of Chas. L. Robinson to be horticultural inspector at Yakima in place of H. L. Miller, resigned, and C. A. Noren to be inspector at Prosser in place of Luke Powell, who has also resigned.

Crops on 700 acres of Yakima Valley land were ruined when vandals blew up the standpipe of the irrigating system in that section. To save the trees in one orchard tract belonging to the Union Orchards Company the apples were stripped from the trees. The orchard is estimated to have had a crop of 12,000 boxes on it.

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A report from Yakima, Wash., says the Libby, McNeill & Libby cannery interests have announced a boost in contract prices which will mean the payment of about $60,000 to Yakima orchardists. The increase is over $20,000 on pears alone. When the cannery was established there long-time contracts were made. The price of cherries was boosted from 4 cents a pound to 7 cents on contracts. Pears, contracted at $22.50 a ton, are raised to $35.00. Cling peaches are to bring $35, in comparison with the original contract price of $20. The raise is made voluntarily by the cannery, which said the growers could not pay the present prices for labor and make a profit without greater compensation. The cannery has completed the installation of a maraschino cherry machine, and expects to turn out 500 barrels of this delicacy. At the peak of the season the cannery will employ 500 workers.

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Never in its history has there been so much improvement going on at one time as is now the case in the Selah Valley according to the local paper in that section. Hundreds of thousands of dollars are being put into new homes, substantial warehouses, packing sheds and barns and the money to pay for it is all coming from fruit, this authority asserts.

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The Spokane Fruit Growers' Company, which was planning to build several apple warehouses in the Spokane Valley, has delayed their erection owing to an unexpected decline in the expected production this year. One of these warehouses will be erected at Greenacres. This company is spending $450,000 for apple boxes and $125,000 for wrapping paper this year.

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Yakima county lost its second district horticultural inspector within six months when H. L. Miller, who came two months ago from Walla Walla, left for Spokane to become assistant manager of the Skookum Packers' Association. Miller's predecessor, C. B. Wood, left to join the Schoenburg Pepper Company, while H. E. Waterbury and F. H. Desellem, in service before Wood, are also working for private fruit concerns. In addition to Miller, four chief deputies, John A. Webber, J. W. Vaughn, F. A. Kelly and C. E. Flickenger, all have gone with private fruit businesses. Men say that they can not afford to remain in the state's employ at the wages now paid.

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Libby, McNeill & Libby are expected to enlarge their operations in the Inland Empire. The firm has had a large cannery at Yakima for some time and has recently acquired a three-acre site at Buena, Wash., in the heart of the orchard section of the lower Yakima valley. The section produces a huge tonnage of fruit, especially peaches and pears. It is reported the Buena cannery will be in operation this fall and that it will have about half the capacity of the firm's Yakima branch, which cost $200,000.

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H. L. Geary, of Spokane, secretary of the Fruitgrowers' Agency, has completed a tour of the fruit growing sections of the Northwest and expresses the opinion that the fruit yield will be about normal.

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The Heights Packing Company, a cooperative company composed of orchardists in the Underwood district, is enlarging its plant, which has been equipped with a power grading machine. This company expects to handle 22,000 boxes of apples this year. The entire apple output from the Underwood district this year is expected to be close to 100 cars.

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The Growers' Service Company will erect a new apple warehouse in the Buena district 50x100 feet. The building will be of substantial construction, modernly equipped, and is to be ready for the early fall fruit shipping season.

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The yield of cherries in the Inland Empire was below normal this season, but as prices advanced sharply the producers probably received at least the normal returns from orchards. In the Lewiston, Idaho, section the price of packing cherries was around 12 cents and canneries and packing houses operated at extra pressure to handle the fruit. The Tri-State Fruit Concern employed 100 persons and on one day turned out 3,000 boxes of Bings and Lamberts. Pickers received 1½ and 2 cents per pound. Bings brought 30 cents per pound on the Spokane retail market. The Oregon Packing Company employed 200 persons in its Lewiston branch.

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The advent of July saw the strawberry season practically finished in the Inland Empire, the cherry crop almost cleaned up and the raspberries and blackberries coming on the market freely, while the apple producers were beginning to shape their plans for the fall season in anticipation of a good normal yield.

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The American Fruit Growers, Inc., is apparently preparing to operate on an extensive scale in the Spokane district, Washington. It has obtained two more orchards in the Yakima



Valley by closing deals on the Arthur Eugene Darby place of 20 acres planted to commercial varieties of apples now 11 years old and the E. W. Ross holding of 60 acres adjoining. It is understood that this syndicate also has an option on the C. E. Olson place of 200 acres at $150,000, and the 212 acres of prunes and apples owned by the Manuel Brothers, near Buena. It is rumored that the price for the latter orchard is close to the $1,000 per acre mark. If all the options that have been taken by this company on fruit land in the Yakima Valley are closed it will control 1,000 acres of orchard in that valley.

**IDAHO.**

Stating that Payette Valley Jonathans have been picked too late in former years, causing them to rot in storage, growers in that district are being warned this year to change this practice and to have all the Jonathans off the trees by October 5, if the growing conditions there are the same as they were two years ago. Growers are advised to commence picking September 5 and have all the Jonathans in cold storage by October 5. It is estimated that the Payette Valley will produce 800 cars of Jonathans this year, representing at prevailing prices more than $1,000,000.

The apple crop in the Weiser district this year is reported to be the largest and apparently of the best quality in the history of the industry in that section. The principal varieties in the Weiser district are the Rome Beauty and Jonathan. Some ravages from aphis is reported from there, but not sufficiently serious to affect the crop very materially.

Dirt storage house for storing apples temporarily are being tried out in the Payette Valley. The movement is said to be meeting with favor in that district and to have attracted considerable attention from fruitmen in Colorado. A model, one twenty-fourth the size of a dirt storage house 36x50 feet is being exhibited at Payette and will be shown also at New Plymouth and Fruitland.

The apple crop in the Payette-Weiser district this year is estimated at 2,500 cars, the Boise Valley district at 500 cars, the Twin Falls district 400 cars and the Lewiston district 350 cars. Midsummer reports show the fruit to be in fine condition.

Funds have been raised in Idaho to employ a special man to recruit fruit labor and an office will be established at Boise to assist growers in securing hands to pick, pack and handle fruit. Growers have been instructed to estimate the number of hands they will need and to send their lists to the Boise office, which will be in charge of H. J. Fleischer.

Although the yield of cherries in all the regions surrounding Lewiston, Idaho, was not more than 65 per cent of normal this season, the total shipments sent out from Lewiston will reach $270,000, according to the report of D. S. Wallace, of the state department of agriculture. This includes shipments from the big ranches on the Washington side of the Snake river between Lewiston and Riparia, as well as the crops from Lewiston Orchards, Clarkston, and the surrounding country. Eighty carloads of cherries were shipped out of Lewiston, and 350 tons were handled by local canneries. At least 20 tons were shipped by express.

## New Growers' Association Grows Rapidly

The Oregon Growers' Cooperative Association has been making rapid progress in organizing the various districts in the Willamette Valley during the past month and recently announced that it had secured a total of 14,000 acres of fruit that will be handled by the association in 1920. The directors of the organization now believe that they will be able to control the tonnage from 25,000 acres by the first of the year.

The executive offices of the association have been established at Salem and Prof. C. I. Lewis is handling the organization campaign which he is conducting out of the time allowed him as a vacation by the Oregon Agricultural College, where he is chief of the division of horticulture. To inform growers in regard to the benefits of cooperation, the association is issuing a house organ called "The Oregon Grower." A standard brand name for the products handled by the association will be adopted and they will be extensively advertised as Oregon grown and packed.

The association has under consideration the establishing of a number of processing plants which it expects to erect wherever they are needed. A large proportion of the tonnage of the walnut growers of the state, it is expected, will be handled by the association next year. The nuts will be graded and a separate department provided for marketing them to the best advantage.

**Oregon Men Make Big Profits.**

H. L. Morrell, one of the strawberry growers of Clackamas County, Oregon, is meeting with success in growing this fruit.

Mr. Morrell has seven and one-half acres in strawberry plants at his home at Willamette, two and one-half acres of which are two-year old plants, two acres in one-year-old plants and three and one-half acres in plants that were set out last year.

From these berries Mr. Morrell has made a profit of $3,300 and he expects to make $5,000 next year.

## The Regeneration of the Prune

Continued from page 9.

and children of his community, including possibly those of his own family, to have the prunes picked up, having allowed them to remain upon the trees until they have taken on all the sugar possible and have of their own accord dropped, or been lightly shaken down. Man and team will now be kept busy hauling the fruit to the dryer, where it is washed in two or more waters, spread upon the trays, and finds its way into the hot-air chambers of the evaporator. Beginning at a moderately low temperature while the fruit wilts and begins shrinking, it is moved slowly down into the higher temperature until finished in dry heat at about 180 to 200 degrees. It is then removed from trays and such fruit as is not thoroughly cured through to the pit is picked out and given a second drying or finish, and the cured product finds its way at once to the warehouse of the packer.

The cost of an evaporating plant to handle an orchard of thirty-five to forty acres will be according to the type of machine selected and according to the taste of the builder in the manner of construction, anywhere from $1,500 to $3,000, and is a part of the fixed investment and cost of the orchard, and should be figured upon at the outset. for no orchard is complete without its own drying plant. With such an orchard, well located in the Willamette Valley, an income from $3,000 to $6,000 can be expected with as much or more regularity than the producer of almost any other crop, and at a comparatively light outlay of expense, and with less technical knowledge of horticulture than is required for the raising of almost any other fruit.

Packing and marketing of the Oregon prune is an industry by itself of no small proportions. The grower may belong to a co-operative marketing and packing association; otherwise, he will sell his crop for cash, paid when delivered to the packer's warehouse or f. o. b. the cars at his own station. The value of his product is arrived at by the size which his fruit will average. The packer then puts the fruit through a grading machine which assorts it into sizes, 20s to 30s, 30s to 40s, 40s to 50s, 50s to 60s, etc. Twenty to thirty prunes to

the pound makes what is commercially known as 20s to 30s. Each separate size of fruit, as above described, then finds its way to its respective bin, and later it is taken to the sterilizing machine for cleaning, and is made ready to fill orders, each particular size of fruit being handled separately. The modern method of preparing and packing of Oregon prunes has entirely dispensed with the use of preparations or dips; absolutely nothing is now used by the best packers of Oregon prunes except the process of cleaning and sterilizing. Each packer, of course, has his own methods and peculiar ideas as to how the best results are obtained, and he operates his packing plants accordingly, but it is now a well-known fact that Oregon prunes, properly cured and packed, will keep with ordinary care for an indefinite period.

The package most popular with the trade just now is the twenty-five pound box, although some markets still take large quantities of the fifty-pound size. There is also some demand for the ten-pound size, which is sold direct to the consumer without being broken up, and this is the sensible and sanitary way to buy the fruit. Many times more prunes would be sold to the best class of trade if their attention was drawn to the real merit of Oregon prunes as a food and to the perfectly clean character of the fruit as it reaches them in the ten-pound package, coming directly from the sterilizing plant to the consumer, as it should. When the dust and dirt of the retail grocery store and the open box, bin or bag of prunes can be replaced by packages or by a container of some sort which will reach the consumer as originally packed—similar to seeded raisins—then there will come the day of the prune, for no cured fruit possesses greater merit.

The annual production of this fruit during the past few years has increased rapidly, but no more rapidly than the power to consume them, for there has been no over-production save in the year of 1902. The annual production from the present acreage may be said to run in round numbers about 40,000,000 pounds. While the crop of 1908 was only about half the quantity, the present year's crop may be expected to reach the full average. If a publicity campaign could be equitably applied to this product, the writer believes that the production might be several times doubled and the product would be all taken up at remunerative prices to the producer. It only remains for the consuming public in this and foreign countries to know the quality and merit contained in Oregon prunes in order to make them one of the most popular, every-day dishes in millions of homes where they are today unknown.

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Hood River Lambert cherries sold in New York recently for 40 cents a pound by the carload. Is it possible that the king of spenders, Death Valley Scotty, has cut loose again.

## Peach Picking and Packing, Etc.

Continued from page 6.

seven first layer, two rows five long and three rows six long, twenty-eight second layer, or fifty-five; seven, five rows, two rows five long and three rows six long, twenty-five to the layer, or fifty; eight, five rows, two rows five long and three rows four long, twenty-two first layer, two rows four long and three rows five long, twenty-three second layer, or forty-five; nine, five rows long, twenty to the layer, or forty.

All 3x3 packs vary six peaches to the box, and all 3x2 packs vary five peaches to the box. The fruit is laid on its side lengthwise across the box, or the stem end of the peach to the side of the box.

### The Fancy Oregon Pack.

In Oregon peaches are generally packed in boxes which measure 18½x 11½ inches, varying in depth from two and one-half to five inches. These sized boxes take all the various sizes as the fruit is usually packed two layers in depth. The method of packing is the same as employed in Colorado with the exception that the 2x2 pack is employed for the larger sizes running from fifty-six to forty-four to the box. The grading is practically the same as practiced in Colorado; the various grades being designated as extra fancy, fancy and choice. All these grades are carefully wrapped in paper. In the Ashland, Oregon, district where peach culture is carried on to a greater extent than in any other district in the state, the term fancy is generally applied to peaches running 64 or less to the box. The next grade contains from 64 to 80 peaches to the box and the last from 80 to 92 peaches. All this fruit must be free from worms and fungus. All the fruit below these grades is sorted out to be used for canning and pies. One of the most important things in packing peaches is not to allow sufficient space between the lid and the fruit to leave it loose. Peaches packed loosely will not ship well. They should also be kept in a cool place to secure the best results in shipping.

## The Grasshopper Pest

Grasshoppers in enormous quantities have invaded the orchards and grain fields of California and are expected to sweep along the entire Pacific Coast. Orchardists and farmers in the Pacific Northwest are being warned to be on the lookout for these pests by the United States Agricultural Department experts, who advise the use of poisoned bait in stopping their devastation. The most effective preparation for destroying grasshoppers is said to be the following: Wheat bran, 15 pounds; paris green or white arsenic, 1 pound; lemons or oranges, 6 finely chopped fruits; low-grade molasses, such as refuse from sugar factories, or cattle molasses, known as "black strap," 2 quarts; water, 2 to 4 gallons. The bran and poison are thoroughly mixed while dry, the fruits are then finely chopped and added, and, lastly, the molasses and water are poured over the bait and the whole thoroughly kneaded. A coarse-flaked bran is most desirable, although where this cannot be obtained easily ordinary middlings or alfalfa meal may be substituted; a low-grade, strong-smelling syrup or molasses, however, is essential to the entire success of the undertaking. Crushed ripe tomatoes, watermelons or limes may be substituted for the lemons or oranges, if necessary. In semi-arid regions water should be added to the bait at the rate of 4 gallons to 25 pounds of bran, as in these climates the bait dries out very rapidly and the extra moisture is necessary in order to attract the grasshoppers. Five to seven pounds of the mixture should be estimated per acre.

### Cherry Leaf-Spot.

The leaf-spot of the cherry seriously injures both sweet and sour varieties of that fruit in many sections of the United States. It is caused by a fungus which lives through the winter on the fallen leaves and infects the new leaves in the spring. The best control of this disease is obtained by spraying with a diluted lime-sulphur solution or with Bordeaux mixture (1) as soon as the petals fall, (2) about three weeks later, and (3) directly after the fruit is picked. Quaintance and Siegler recommend lime-sulphur solution at the rate of one gallon to 40 gallons of water for first treatment, and for control, dilute lime-sulphur as soon as fruit has been picked.

## Use of Powder in Blasting, Etc.

Continued from page 8.

In the first place, the purpose of blasting is not to supplant the spade. It is possible to dig the hole with explosives, just as a hole may be excavated for a fence post. But the real object of blasting is to mellow the subsoil and make root growth and spade digging easy.

The orchardist must take into account the fact that by loosening the subsoil in a thorough manner, the moisture from the rains can soak in quickly, not only immediately around the spaded out hole, but the fine cracks radiating in all directions from passageways for the further absorption of water. They carry the life-giving moisture to great depths and store it there, to be brought out again by capillarity during the dry seasons for the sustenance of the tree. Our records show that the yearly saving in replacement and replanting costs in young orchards more than balance any expenditure for explosives.

### How To Do the Work.

*Laying Out the Orchard.* — The places to set the trees or other plants are selected and marked by a stake, or better, if the field is large, by furrows plowed to indicate the exact lines for the trees, and crossed at the proper intervals by other furrows to indicate the spacing in the rows. Sometimes a heavy cord or light wire stretched across the field will materially assist in laying out the orchard.

*When to Blast.*—Blasting for tree planting is best done in the late summer because it is easier to catch the subsoil in a dry condition, but blasting in the spring for spring planting, although the subsoil is apt to be wet or damp, is nevertheless much better than planting in dug holes. It should be done as many days ahead of planting as possible, to get the effect of air and sunlight in the hole.

*Examine the Soil.*—The exact nature and depth of the subsoil should be known in order that the explosive may be used to the very best advantage.

The only way to know this is to go down and see. Do not stop at the surface, but go down four or more feet. Using a good soil augur is the best and easiest way to test out a subsoil, but if one cannot be had, dig a hole. Another way is to blast out a test hole and examine each layer of the soil. This is not so good as the other methods, as the blast so disturbs the subsoil that it is hard to tell just what the original condition was.

*How Deep to Blast.* — There are many different kinds of subsoil, but those illustrated by the drawings are the most common. If the arrangement of the soil is like that in illustration "A," Fig. 1, place the explosive well down into the clay and destroy any shallow plow sole with a good plow. The best depth for blasting in such soil is usually from thirty to thirty-six inches.

In soils like the one represented in "B," Fig 1, place the charge toward the bottom of the hardpan so that the

entire layer may be pulverized, but do not go below the bottom of it, as the force of the blast will tend to raise the hardpan in chunks rather than shatter it. The depth is governed absolutely by the depth of the hardpan:

Illustration "C," Fig. 1, shows one of the most common subsoil troubles. This type of hardpan or tight clay is usually too deep to blast through and relief is obtained by pulverizing several feet of the top, which if well done will be found to be sufficient to store moisture and furnish room for an ample root development. For such a condition the blast should be made not less than three feet deep.

Occasionally a soil is found like that shown in "D," Fig. 1, which will usually be found to require deeper blasting. The explosive should be placed well down in the hardpan—the deeper the better.

When very deep loading is practiced it is best to increase the amount of the charge, sometimes to more than double the amount normally used.

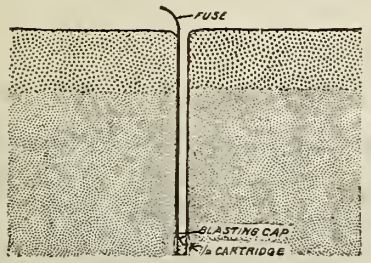



Fig. 3. The charge in place.

*Making Bore Holes.*—A number of different methods have been devised for making the bore holes for loading, but so far no other tool has given such good results as a heavy subsoil punch Fig. 2. This tool is made of 1½-inch steel and should be not less than three feet long. Smaller drills will not be satisfactory, as the explosive cartridge is itself 1¼ inches in diameter and when primed with cap and fuse is difficult to load into a smaller hole. The punch is driven to the desired depth with a sledge, and loosened by pounding on the sides, after which it can easily be withdrawn.

A soil auger is quite satisfactory for making a small number of holes, but is too slow and expensive if there is much work to be done. However, for holes deeper than three feet, one can be used very satisfactorily to deepen the drilled holes. In some cases holes can be made with a heavy crowbar. Some soils are so hard, being in reality soft rock, that a rock drill is required to make the holes.

*Preparing the Charge.*—The charge is prepared by cutting off a piece of fuse as long as the hole is deep, and crimping a cap on one end by means of a cap crimper. The cap with the

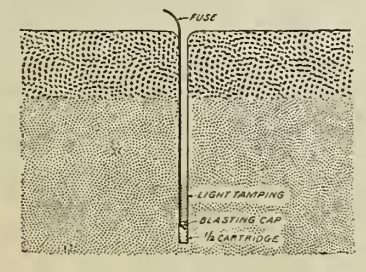



Fig. 4. Light tamping over charge.

fuse attached is inserted into the explosive used, and securely tied.

*Loading the Hole.*—Start the charge into the bore hole and press it gently to the bottom with a wooden tamping stick, Fig. 3. Pour in four or five inches of loose dirt and tamp it gently, Fig. 4, then pour in more dirt, preferably slightly moist, as it packs better, and tamp firmly, Fig. 5. When the explosive is covered with several inches of lightly packed soil the rest of the tamping should be made as hard and tight as is possible, using the stick in one hand. The hole should be tamped full.

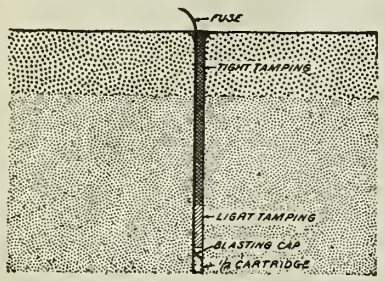



Fig. 5. Top of hole tamped tight.

*Firing the Blast.*—The next operation is to light the fuse and retire to a sufficient distance to avoid any loose material that may be thrown out. If the loading is properly done and at a sufficient depth there is usually only a thud and a cracking of the surface and no soil is thrown into the air.

*How to Treat Blasted Holes.*—If the holes are blasted in advance of the time of setting the trees they are left

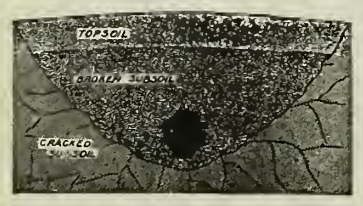



Fig. 6. The blast thoroughly cracks the soil, but leaves a cavity or pothole at the bottom. This must be filled.

without further attention until planting time, unless it is desirable to add some manure or fertilizer to be diffused through the soil. This is a good practice, especially on poor soil. If the soil is sour, sticky clay, a few pounds of lime scattered in the hole will materially assist in loosening the clay and keeping it permanently granulated and sweet.

*Setting the Tree.*—When the trees are to be planted shovel out the hole and locate the cavity that is usually

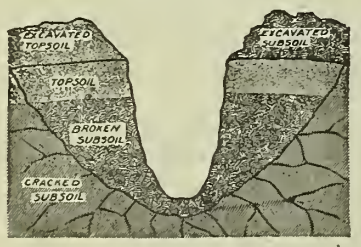



Fig. 7. The best practice is to shovel out the loose soil and expose the pothole. This is easily done in the freshly blasted holes.

sprung at the bottom of the hole, Fig. 7. Fill this with tamped soil to firm the base to prevent subsequent settling of the trees. The filling should

be up to the level it is desired to set the tree, taking care to keep the soil well tamped. Set the tree with the roots in as near their original position as possible and pack them with the top soil that has been shoveled out of the hole, Fig. 8.

When no attention is paid to settling or firming the soil in the bottom of the hole, trouble often results from the tree settling too deep after the first heavy rains, but this trouble has never been observed when the holes were properly examined and the described precautions observed in setting the tree.

Just before packing the soil around the trees be sure that they are in line with the rest of the row.

When trees are set as much as thirty or more feet apart it is an excellent practice to place blasts midway between the rows after the trees have been growing several years. These will open up the subsoil between the trees that was but slightly disturbed by the original blasts and will induce

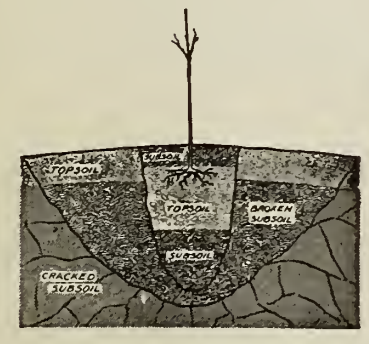



Fig. 8. As much of the hole as possible should be filled with fertile surface soil; the rest can be filled with the subsoil that has been dug out. This should be well packed to prevent settling. The tree is set with the roots spread out in their natural position.

more vigorous root growth, and consequently better trees will be the result.

It should be remembered that this method of setting applies not only to orchard trees such as the apple and peach, but to nut trees, and shade trees as well.

For blasting holes to set large trees additional benefit is derived by placing several blasts close together so that the subsoil is more thoroughly shattered.

Usually one-half cartridge charges are sufficient, except in the heaviest hardpan and where loading deeper than 40 inches is required.

## Increasing Profits, Etc.

Continued from page 7.

season. The books showed a saving in cultivation that year which amounted to $987 while approximately $1,000 was cleared on the hogs. Mr. Gammon figures that the manure from the hogs and sheep offset any loss in fertility due to feeding. In addition the pear trees bore a bumper crop of fruit, some trees yielding from 30 to 40 boxes. Mr. Gammon says he will continue to intercrop with legumes.

Mr. A. B. Humphrey, of Mayhes, California, is as weil known among live stock breeders as among fruit growers. His Berkshire boar, Grand Leader II, was grand champion of the Panama-Pacific International Exposition, and later with several of his progeny, sold for $4,500. Mr. Humphrey also raised Star Leader, sired by Grand Leader II, who headed the Berkshire herd of the University of California and later sold for $1,500. Mr. Humphrey has his three orchards of plums and pears on a 300-acre farm sown to alfalfa, not only to save the labor of cultivation but to furnish pasture for his increasing herds.

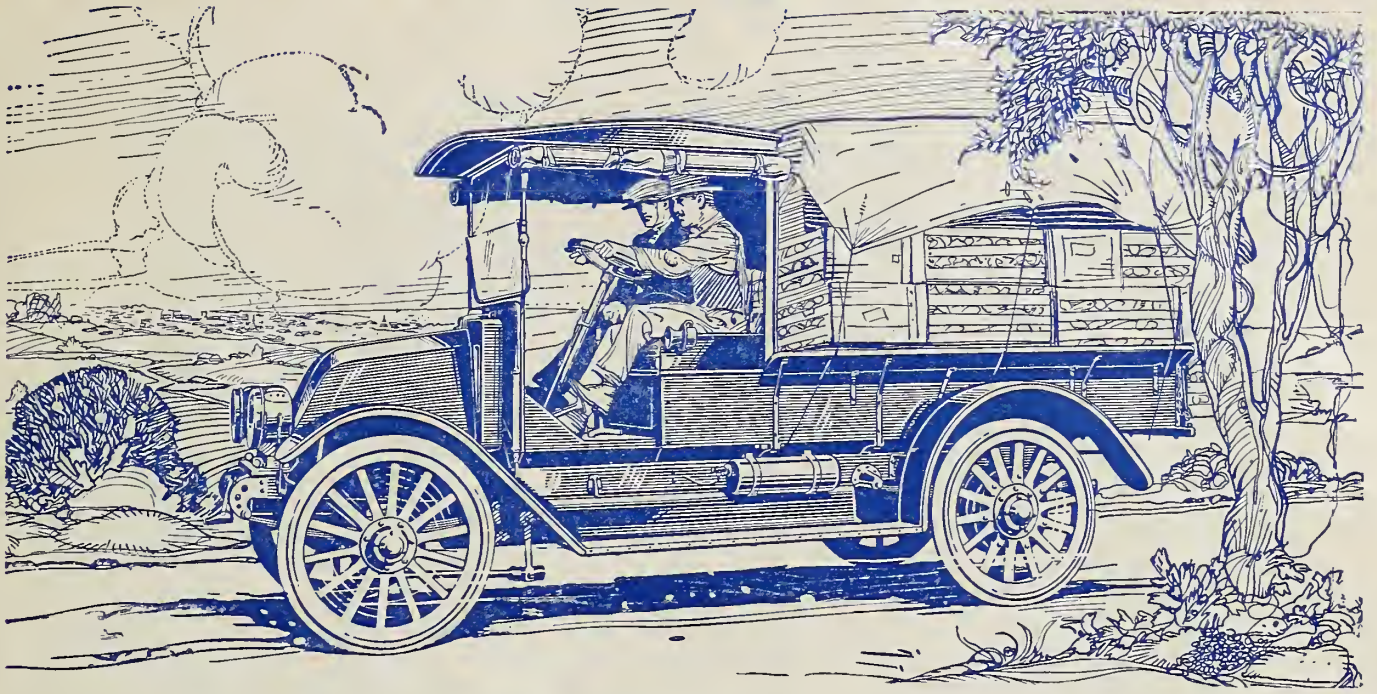
The Wenatchee irrigated section used to be a staunch adherer to clean cultivation and the dust mulch. One orchard, that of Barney and Williams, however, adopted a permanent alfalfa cover crop. This system has been followed for twenty years. Statistics show that this orchard has one of the largest bearing records of this district. Nineteen boxes represented the average bearing per tree per year from 1907 to 1912 inclusive. The trees are continuing this production. These results have been so definite that today practically seventy-five per cent of the Wenatchee orchards are in alfalfa.

Hogs and sheep offer a good diversification for the average orchard under irrigation, the initial investment in foundation stock being small. Some poultry should be found in every orchard and certain orchards favorably located have found large flocks profitable. Dairying on a large scale makes a rather complicated problem for an orchardist but a few cows will furnish a ready cash product and skim milk forms a valuable part of a ration for either hogs or chickens. Every orchardist regardless of his location should produce as much of the food consumed by his family and by his hired help as is possible.

It is interesting to note that more and more orchardists are finding that it does pay to "fool" with one or more of the side lines. The advantages accrued from the use of legume cover crops in the orchard pastured by live stock such as sheep or hogs may be summarized as follows:

1. The saving of time and labor in cultivation.
2. Organic matter in soil protected from burning sun.
3. Larger numbers of bacteria, which made plant food available for trees, develop in the upper layers of soil because of the presence of organic matter and moisture.
4. Additional crops grown on land not used under "clean cultivation" system.
5. Otherwise non-available nitrogen of the air gathered by bacteria on roots of legumes; used by the legumes; stored in the soil and later used by the fruit trees.
6. The pasturing of intercrops saves time and labor of harvesting.
7. Manure of animals returns fertility used by legumes.
8. Plant food of soil made more available through growth of legumes and manure of animals.
9. Eating cull fruits by animals eliminates many insect and fungus enemies.
10. Increased bearing surface and crop easier to harvest; unnecessary to prune branches high to leave space below the limbs for teams.

# does it pay?



A RANCHER located 45 miles from the railroad used to spend four days on the road with a team going and returning from his shipping point. With his International Motor Truck, he makes the trip in a day and saves three days for productive work.

A farmer living ten miles from town required the greater part of a day to make a round trip haul with horses. With his

## International Motor Truck

he makes the trip in about three hours. The rest of the day he has for productive work. To the farmer living closer to market, the saving accomplished with an International Motor Truck is relatively as great.

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